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IS SINGAPORE TO BE THE FUTURE RUBBER MARKET?

THERE appears on another page in this issue a letter from Singapore setting forth the claims of that port to be considered the rubber shipping market of the world. Our correspondent has been prominent in rubber circles of the Federated Malay States for a good many years and is thoroughly familiar with the ground he covers. He estimates that in the year 1914 the Malayan rubber yield will be 55,000 tons, in 1915 75,000 tons, and that by 1917 or 1918 the Malayan product will equal 140,000 tons. He then proceeds to show by means of comparative tables of cost, in which he goes much into detail, that it would be greatly to the advantage of American rubber importers—even at the present time—to buy plantation rubber direct from Singapore rather than from London.

According to the figures, which he has prepared with obvious care, there would be a saving to the New York buyer of 2 per cent.—or, in other words, he would be able to buy rubber in Singapore and have it delivered in New York at its present cost of delivery in London—thereby saving all the extra freight charges and the various handling expenses now added to the cost because of reshipment.

There would also be the great advantage, which has been repeatedly pointed out in these columns, of receiving the rubber in New York in its original cases, for, as our correspondent states: "All the rubber purchased in London for America is mixed up, and one lot may consist of breaks from Ceylon, Straits, Borneo, and Sumatra, etc., all different climates; and the rubber, altho exact in appearance, will give quite different reactions. By purchase here (Singapore), the consumer would know even the estate every parcel came from."

The planters would profit by these direct shipments quite as much as the New York importers, and, with the exception of those who are under long-time agreements with London agents, they are very anxious to make this direct connection. As the shipment of plantation rubber direct to New York would be profitable both to the American buyers and to the Middle East sellers (the only obstacle standing in its way being the tradition that London is the gateway of the East), it is a foregone conclusion that the planters and the importers will very soon come to an understanding and rubber be shipped direct from Singapore to New York. It is a clear case where the middleman no longer serves any useful purpose. He has lost his *raison d'être.*

A LOOSE PIECE OF LEGISLATION

FROM the days of Moses down to Solon and from Solon down to the present time the making of laws has always been thought to belong to superior minds of exceptional wisdom; and that is the reason why our members of Congress are so carefully selected with reference to their ripe intelligence. But in the hurry and stress of Washington life occasionally a piece of legislation goes through the halls of Congress that fills the lay mind with wonderment if not with consternation. Such a bill has recently been passed. It is known as the Kahn law. Its purpose is to protect foreign exhibitors at the San Francisco Fair in their ownership of patents, copyrights and trade-marks; and in its endeavor to throw ample protection about this foreign ownership it distinctly endangers the rights of the American manufacturer, and unless amended constitutes a grave menace.

It provides that the Librarian of Congress and the Commissioner of Patents shall establish a branch office at the fair where "the proprietor of any certificate of

registration, copyright, trade-mark, or patent issued by any foreign government protecting any pattern, model, design, copyright, trade-mark, or manufactured article imported for exhibition and exhibited at said Panama-Pacific International Exposition may, upon presentation of satisfactory proof of said proprietorship, obtain without charge a certificate from said branch office, which shall be legal evidence of such proprietorship."

Then it continues in the next section as follows: "It shall be unlawful for any person without authority of the proprietor thereof to copy, imitate, reproduce, or republish any pattern, model, design, trade-mark, copyright, or manufactured article protected by the laws of any foreign country by registration, copyright, patent, or otherwise, which shall be imported for exhibition at the Panama-Pacific International Exposition and there exhibited; and any person who shall infringe the rights protected under this Act shall be liable"—to injunction; to damages; to confiscation of his goods; and, finally, to fine and imprisonment.

It is a well-known fact that not a few foreign governments grant certificates of trade-mark, patent, etc., to applicants without making any proper examination of the merits of the application. It would be very possible for foreign exhibitors to come to the fair with goods protected by their own home copyright or patent—and consequently under this law protected in this country—tho their goods were direct imitations of goods made in this country without any protection. So that an American manufacturer who had been making a certain line of articles for many years might be held liable for infringement, with all the attendant penalties, for the continuance of such manufacture, simply because some exhibitor from abroad, who had copied these American goods, had secured from his own government a certificate of patent or copyright.

Here is a law that obviously is in need of amendment, and it is hoped that some alert member of Congress will make such a move forthwith. The National Registration League of Philadelphia has taken the matter up and is bringing it to the attention of American manufacturers. Anyone who desires a copy of this remarkable law (No. 7595) can secure it from that league.

SELF INTEREST THE BEST PROMOTER OF EFFICIENCY.

PROBABLY every considerable business man, whether manufacturer or distributor, has been approached a great many times during the last five or six years by the "Efficiency Expert," or by his representative. It is a very alluring story which they have to tell—larger production with fewer hands, bigger output at a lower cost, increased income, decreased outgo.

It is not to be wondered at that a good many men have succumbed and have invited the efficiency expert to come in and do his utmost. Some concerns have undoubtedly been benefitted. Here and there a business house may be found, that has come down from father to son, that is still moving in the footsteps of the founders and that has become generally fossilized. Here any sort of modernizer who will come in and scrape off the barnacles will prove helpful. But there are not many such instances. As a rule, business men aim to be abreast of the times and intend to have their equipment as modern as that of their competitors. At least, this is certainly the situation among rubber manufacturers.

The efficiency expert appeals for employment on the theory that anyone who comes in from the outside enters without prejudice or bias, and therefore is able to judge everything and everybody purely on merit. But this very ignorance of the special case is often the obstacle on which the expert comes to grief. He does not have time to get thoroughly acquainted with the situation or to diagnose the individual case. He goes through the mill, takes copious notes, carries them back to the office, and then they are discussed by himself and his associates. They probably have all business enterprises classified under certain heads, and they finally decide that the concern under consideration belongs to, let us say, Group B, and therefore they prescribe for it some Group B medicine, which may act as a cure, or may act quite in the contrary direction.

After all is said and done, the best promoter of efficiency is self-interest, where each man stands on his own feet, and is paid according to the work he individually does. Where he is rewarded in proportion to his productive power he can be relied upon, as a rule, not to waste much of his energy in futile motions. If a man is going to get $4 a day anyway, irrespective of what he produces during that time, he is liable to get into the habit of watching the clock for the day to end. But where his day means to him $3, or with twice the application of energy and brains $6, the greater application is likely to be forthcoming. Of course, this system of piece work is not applicable in clerical departments, but in manufacturing it generally is applicable, and, taken all in all, it is undoubtedly the best promoter of genuine efficiency yet devised.

WHAT THAT PNEUMATIC SUBSTITUTE MUST HAVE.

A TECHNICAL contemporary, in discussing that ever interesting subject, "A substitute for the present pneumatic tire," remarks that "the seeker for a substitute for the pneumatic tire must find something as light as air, as resilient as air, as durable as air, and as free of cost as air."

Now that is rather a hard "stunt," even for the indefatigable and irrepressible inventor. If he must find something as light as air his quest is obviously restricted to matter not only in gaseous form, but of a particularly light gaseous form; and if the only substitute permissible is something that is absolutely without cost—for up to the present time air has not been brought under any modernized system of financial control—his problem is certainly a puzzler, and the substitute seeker might as well give up the quest.

But is it essential that this sought-for substitute should be as light as air? Air is nearly eight hundred times lighter than water, and a substitute might weigh one hundred times as much as air and yet not add more than three or four pounds' weight to an automobile tire of the usual size—in other words, not more than 15 or 20 pounds to the entire weight of the car. This certainly does not appear, on the face of it, like an insurmountable difficulty. Moreover, it seems quite possible that a substitute might be discovered that was even a little more expensive than air and still be available. Suppose this substitute, instead of costing nothing, increased the cost of a tire a dollar—or let us be altogether reckless and say five dollars—would that necessarily bar it, provided it proved in other respects an improvement on air?

As a matter of fact, the question of added weight and added expense, assuming that both are within reasonable limits, is not a serious one. The seeker after a pneumatic substitute has just two things to keep in mind: First, resiliency equal to air (for it is safe to assume that auto riders would not care to sacrifice any of their present comfort), and second, greater service for the cost than a pneumatic gives. He may attain this desideratum either by greater durability at the same cost or the same durability at a lower cost; and, of course, if he can secure both of these conditions—that is, more service with less cost—his solution will be doubly satisfactory. The problem is a difficult enough one even when reduced to its simplest terms, without cumbering it with any unnecessary complications.

WILL AMERICAN COTTON ALWAYS BE SUPREME?

AMERICANS have felt quite free to criticise Brazil for the comfortable assurance it has complacently entertained all these years that its rubber would always remain supreme, irrespective of the efforts of the rest of the world to push into the rubber market. The Brazilians have at last seen their mistake, but they did not see it until the production of rubber from the East and other parts of the world had equaled that of the Amazon. Now the question is—Are Americans in a somewhat similar position in regard to cotton? We have rested content for many years in an imperturbable confidence that America in the cotton field would never have a rival. But is this confidence warranted? The cotton production for the current year is estimated at 12 billion pounds, or 24 million bales. About two-thirds of this production, or approximately 16 million bales, will be produced on American soil. This still shows a good lead, and there is the additional fact that, taking one year with another, the American production is steadily increasing; but over against this reassuring situation is the incontrovertible fact that foreign production of cotton is increasing vastly faster. In India, for instance, the cotton production in 1910 amounted to 1,400,000 bales. The present year it will reach the very sizable figure of 6,000,000 bales, or an increase of over 300 per cent. in three years. The Middle East has one tremendous advantage over both Brazil and the United States—its great supply of extremely cheap labor. This is what is likely to prove the undoing of Brazil in the rubber market. Will it also prove the undoing of America in the cotton market?

To be sure this is not just at this moment a pressing question, but it is certainly an interesting one.

THE PERSISTENCE OF RUBBER.

IT cannot be said that rubber is imperishable, because of course it can be worn out in time; but it is certainly extremely persistent and clings to its identity with a tenacity displayed by very few materials—a fact that is brought to mind with considerable frequency. The following paragraph recently appeared in one of the New York State daily papers: "The Hospital Guild makes an appeal for gifts of old rubber of every description—tires, garden hose, shoes, water bags, etc., to be sold for the benefit of the hospital."

Similar paragraphs appear quite frequently in the press of smaller communities, showing that the collection of old rubber articles for the assistance of various charitable institutions is not an uncommon practice. Now no one ever heard of a hospital or similar institution asking friends to bring collections of old shoes, rimless or crownless hats or punctured tin pails, for all these useful commodities when once worn out have served their full purpose and have no further worth; but if an article is made of rubber it may be worn out and useless in that particular capacity, but the rubber it contains still remains of value. So while these discarded tires, worn-out shoes, broken water bags and punctured pieces of garden hose have in themselves no recuperative properties which may be applied to the patients in the hospital wards, they can be turned over to the collector of old rubber and the proceeds devoted to the worthy work of healing. Rubber is perhaps not exactly like the proverbial kind word that "never dies," but it assuredly dies hard, and is capable of a number of resuscitations before its final demise. It would be interesting for some actively imaginative person to trace the career of a given piece of rubber through its various transmutations—first as an inner tube on a $5,000 Limousine, then as a rubber ball which the small boy can play with, then as a piece of soling for a young woman's foot-hold, and finally as a rubber mat for everybody to shuffle over.

Very few people realize to what an enormous extent old rubber is re-used, and probably, as far as the general consumer is concerned, it is just as well not to tell him. He might get the idea that no new rubber was used at all. Some people, unfortunately, already have this impression, which, however, can readily be dissipated by simply asking the question—What, then, becomes of the 50,000 tons of crude rubber used in the United States each year?

WHERE CEYLON HAS THE ADVANTAGE OF BRAZIL.

BRAZIL and Ceylon have one point in common—rubber is an important product of each. But there the similarity stops, for the great staple of Brazil is coffee, and of Ceylon, tea. Both countries have been confronted with the same danger—the overproduction of their staples. Ceylon has met the situation very successfully by converting into rubber plantations much of the land which formerly it was thought could not be profitably utilized except for tea. The exports of tea in 1907 amounted to 182,000,000 pounds, and in 1911 to 186,000,000 pounds, an increase so slight as to be negligible. The price in the meantime advanced from 41½ cents (Ceylon currency) to 45½ cents a pound. The exports of rubber during those four years grew rapidly. The Ceylonese are most fortunate, for as fast as their tea threatens to outstrip the demand they forthwith change to the production of rubber.

But the situation in Brazil is different. Overproduction of coffee is not only a menace but an actuality. If the Brazilians could only transform some of their coffee lands into rubber plantations, the problem would be solved; but unfortunately they can't, for their rubber comes from the North and their coffee from the South, and they have little in common beyond being both Brazilian.

So there is where Ceylon has the advantage.

ONE OF THE DAILY PAPERS RECENTLY PUBLISHED THE STATEMENT that the rubber manufacturers of Akron were turning out 20,000 automobile tires each day, and added that this was one-half of the product of the United States. If Akron is really turning out 20,000 automobile tires regularly every day and disposing of them, the situation for the tire manufacturers outside of Akron is certainly a hard one, because their factories must shut down forthwith, for a daily output of 20,000 tires (which would aggregate 6,000,000 tires a year) would supply the entire American market. The annual consumption of automobile tires, including all kinds, pneumatic and solid, has never yet reached 6,000,000, but it probably will during the present year. However, it is hardly necessary to quarrel on this issue with our contemporary. It is not necessary to characterize the statement as inaccurate, but only as a little premature, for undoubtedly within the next two or three years Akron will be making 20,000 tires a day, and with plenty of work left for the other manufacturers. Of course, we cannot tell yet what effect Mr. Wilson's new tariff, with its reduction of duty on rubber manufactures from 35 to 10 per cent., will have; but in view of the fact that American manufacturers have been exporting tires in greater number every year until with the fiscal year ending last June the value of these exports had reached $4,000,000, there seems to be a comfortable assurance that our tire makers will be able to take care of themselves, notwithstanding the fact that the new tariff will open the doors fairly wide to foreign importations.

The Story of the Pará Congress.

By Our Special Correspondent.

[The September and October numbers of THE INDIA RUBBER WORLD contained brief descriptions of the important Congress for the Economic Defense of the Amazons. The proceedings in detail, with adequate illustrations, are now presented by our special correspondent.]

THE members of the Congress for the Economic Defense of the Amazons being assembled at Pará, Dr. Eneas Martins, honorary president, declared the congress duly opened. On the platform, with his Excellency the Governor, were, to his right, Dr. Augusto Borborema, president of the State Senate, and Mr. J. Simao da Costa, representing the Ministry of Agriculture; and on the left, Dr. J. Ferreira Teixeira, president of the congress, and Mr. J. A. Mendes, secretary.

Dr. Bento Miranda addressed the audience in a very eloquent and scholarly speech, as to the necessity of coöperation towards the maintenance of the wild rubber industry of the Amazons, and the creation of other industries side by side with this which is now almost the only industry prosecuted in the whole region.

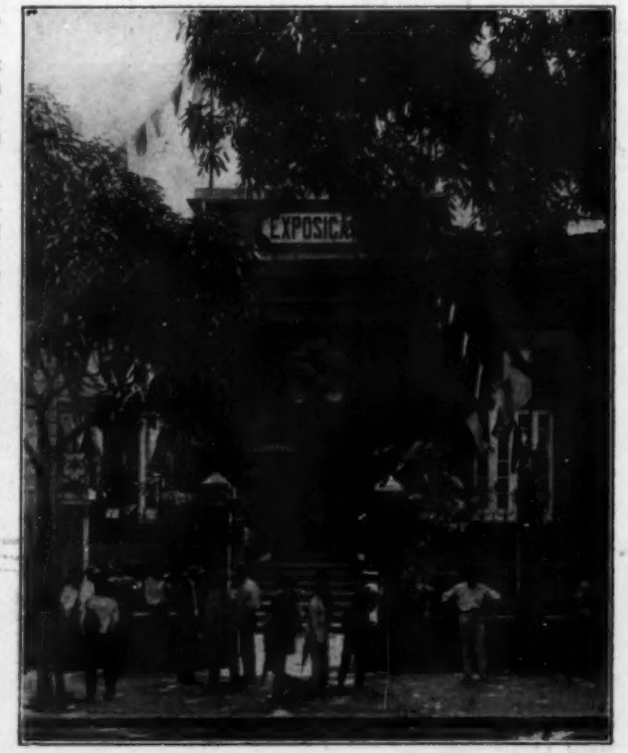
Dr. Miranda referred to the time when the East Indian government proposed a legislative measure for the purpose of sending a competent expert to Brazil to bring back the products of the *Hevea* tree. Brazilian statesmen then gave their attention to matters of detail rather than to the palpable necessities of the situation. This is, however, no time for recrimination. After dealing with the historical and philosophical aspects of the queston, Dr. Miranda in his concluding words referred to the proposal of combining the existing regional banking concerns into a large credit establishment for handling rubber. This establishment would have a laboratory in New York, as well as one at Pará and one at Hamburg, for the comparative study of all qualities of rubber, as well as for the carrying out of a propaganda among the large factories of North America and Central Europe. Contracts would be made on the basis of the different types at prices fixed each season in harmony with the state of the market.

His Excellency the Governor then spoke and informed his audience of the numerous practical methods he had been adopting of investigating the possibilities of extensive fruit cultivation and of taking other steps of equal importance to the future welfare of the State.

STEAMER WHICH CONVEYED MEMBERS OF CONGRESS TO MOJU.

The assembly then proceeded to the Pedro de Toledo Pavilion, where there was a fairly large exhibit of crude rubber, cocoa, cocoanut products, tobacco and other native products. This exhibition having been formally declared open, the meeting dispersed and the public was allowed free admittance to the pavilion.

His Excellency the Governor once more appeared at the second session of the Congress, in deference to Mr. J. Simao da Costa, who had promised beforehand to address the audience.



FRONT VIEW OF THE PEDRO DE TOLEDO PAVILION IN WHICH THE EXPOSITION WAS HELD.

Mr. da Costa spoke for an hour and succeeded in riveting the attention of his audience by the interesting way in which he laid out the lines and indicated the avenues open to the people of the Amazons, making it clear that it was "up to them" to follow these lines and win the respect and the admiration of the world, or lag behind in a state of humiliation and failure.

In opening his speech, Mr. da Costa said that he thought James Bryce had been harsh and unjust as to the characteristics of the Brazilian race, but in one respect he was right,—in the matter of agriculture. As regards this valuable industry, Brazilians cannot deny that they have preferred words, words and words, and after-dinner rhetoric, to practical deeds. But there could be no agriculture where there were no agriculturists. The need for agricultural training was immediate and pressing, as modern agriculture and cattle-farming were no longer the avocations of ignorant peasants, but the noble professions of highly trained scientific men. The immense tracts of forest in the

Amazons were useless and an incumbrance, and only served as a hive for the reproduction of nomadic tribes, until the valuable trees were utilized and the useless ones displaced by trees of recognized economic value.

It was therefore necessary that we should imitate the United States of America and create as great a number of agricultural training institutions as our means could afford.

Another thing which also militated against the development of agriculture was the defective fiscal system prevailing in the country, where protection was carried to an absurd degree. But still worse than this were the official trammels with which our customs administration was burdened.

Capital was also a powerful factor in the future development of agriculture and other industries, and it behooved Brazilians of every social sphere to take to heart the necessity and obligation on their part to respect and defend all such as may bring capital into the country as jealously, as courteously and as gallantly as they would act toward a guest in their own homes. It is impossible to find a more hospitable nation on earth, and one where hospitality is more naturally and heartily dispensed. A people who possessed this inborn virtue should have no difficulty in making respect for the law and for foreign capital and capitalists a matter of national pride.

Mr. da Costa then went on to say that the lack of communications between the north and the south of Brazil, and the higher industrial development of the south in comparison with the north were such that it was impossible to pursue the same protective fiscal policy all over the country without inflicting serious injury on the northern interests and attempts at agricultural and industrial development. He thought that a system could be devised to bring about the needed relief to the north without violating the constitution.

The rest of Mr. da Costa's speech teemed with practical demonstrations of the immense economic value of fruit culture especially, as Brazil grew the best bananas, oranges and pineapples in the world, and could develop a trade of many millions sterling in a short period, if it would only adopt such measures as will attract capital and labor to carry out this desideratum.

Brazil had only to set its public administration on a sensible economical and commercial basis, and with all its immense territorial wealth and hidden treasures it would soon become one of the leading nations of the world.

A prolonged cheer covered the last words of the speaker, and the business of the Congress proceeded.

During the Congress the following events took place: A visit was paid to the Museu Goeldi, where experiments in the coagulation of rubber latex on a revolving drum, after the method evolved by Wickham, were being carried on, and were highly appreciated by all present. Mr. J. A. Mendes was the promoter of these experiments and deserves praise for trying to better the appearance of the wild rubber product now exported from the Amazons. The experiment, however, proved that the unfortunate *seringueiro* is not relieved of the annoyance caused by smoke, and unless he is extremely cautious, he is liable to obtain entrefine rubber. But the process is good and it is an open secret that the attempts which have been made during the last three years to perfect this system of coagulation have not been fruitless.

ADDRESS BY HIS EXCELLENCY DR. ENEAS MARTINS ON "HEVEA" PLANTATIONS.

An elaborate feast accompanied the planting of several rubber trees in honor of all the national authorities, and a visit was paid to the Dafundo Rubber plantation in the neighborhood of the city of Pará.

The delegates also paid a visit to the agricultural colony of Sao Joa do Prata, under the direction of monks who had been instructing the wild Indians and educating their children. Another visit was paid to the Eremita rubber plantation and rice factory, a well equipped establishment of great prospective value. Later a visit was paid to the Experimental Station of the State

of Pará, and Dr. J. Ferreira Teixeira delivered a lecture on the economic value of machinery and modern implements in the exploitation of the agricultural industry. Still later all went to the plantation of the Mojú Rubber Plantations and Improve-

EXHIBIT OF J. MARQUES.

ments Co., Limited. This visit was quite a revelation to most of the Congressmen, who could hardly believe that so vast an area could be cut down and actually planted in such an incredibly short time. Some of the *Hevea Brasiliensis* and cocoa trees which have been very carefully planted and cared for must sooner or later prove a very remunerative investment.

The lands seem to yield rice in such abundance that all the optimistic expectations of the management have been greatly exceeded, and their chief problem now is—how to prepare such a quantity for the market.

The lands still suffer from the unsightliness of the burnt stumps of forest trees, but in time these will be removed and this plantation will be a model of activity, and, let us hope, a highly paying investment. This lack of æsthetic appearances

ANOTHER VIEW OF EXHIBIT OF J. MARQUES.

seems to have offended the eye of the super-British Mr. Akers on his visit here, for he seems to have looked at the stumps "from the top of his high boots" and never stooped to see the beautiful trees now flourishing many feet high above the ground.

If appearances are worth anything, the trees seen at this plantation were the best that the Congressmen were shown in their several trips.

In closing the Congress, His Excellency the Governor and Lady Enêas Martins held a reception at their private residential palace in honor of the Congressmen, and on the day following, Dr. Ferreira Teixeira delivered a very scholarly address, which was enthusiastically cheered, and His Excellency the Governor, in an eloquent appeal to the members of the Congress to continue to work for the same ideals which had brought them together, very clearly stated that upon the attitude of the people of the Amazons depended the future of this region.

All showed an inclination to act and to work, and the proof that the Federal Government meant to respond to this attitude lay in the fact that a Parliamentary committee had been appointed to consider whether the laws already passed to assist the rubber industry could be supplemented to advantage.

The meeting then terminated amid mutual congratulations for all that had been accomplished.

Among the interesting excursions which marked the course of the congress, was one to the Lauro Sodré Institute and Experimental School, which was visited by a large number of delegates. The party, after inspecting the school and the ex-

EXHIBIT OF MUNICIPALITY OF ITAITUBA.

perimental plantation, assembled for a conference, which was addressed by Dr. Ferreira Teixera and other speakers, who specially treated the application of machinery to agricultural purposes.

MEMORIAL FROM ACRE FEDERAL TERRITORY TO BRAZILIAN GOVERNMENT.

In the memorial recently presented by the four departments of the Acre Federal Territory to the Brazilian government, it is pointed out that the present duty of 20 per cent. (in conjunction with other charges representing 5 per cent.), interferes with the export of Acre rubber. As a proof of this fact, it is shown that the quantity exported from the territory in 1908 equalled 6,052 tons, while the figure had dropped by 1911 to about 4,237 tons. Meanwhile, imports of merchandise had increased by 140 per cent. in value.

On the other hand, in Peru, the export duty was reduced, in the first place to 8 per cent. and subsequently to 6 per cent., the basis of valuation being in each case the Liverpool price. Bolivia made a reduction to 12 per cent. and later to 8 per cent.

The reduction of the Acre duty to 10 per cent or 13 per cent. would, it is urged, increase the exports of rubber from that

EXPERIMENT STATION—"HEVEA" AND PINEAPPLE PLANTING.

EXPERIMENT STATION—"HEVEA" PLANTING.

quarter. Such an increase would operate in favor of a reduction of import duties, with the result of developing the latter branch of commerce. A further suggestion is made that this rate of 10 per cent. be uniformly adopted as a maximum on rubber exports from Brazil, Peru and Bolivia.

GENERAL VIEW OF EXPERIMENT STATION, STATE OF PARA.

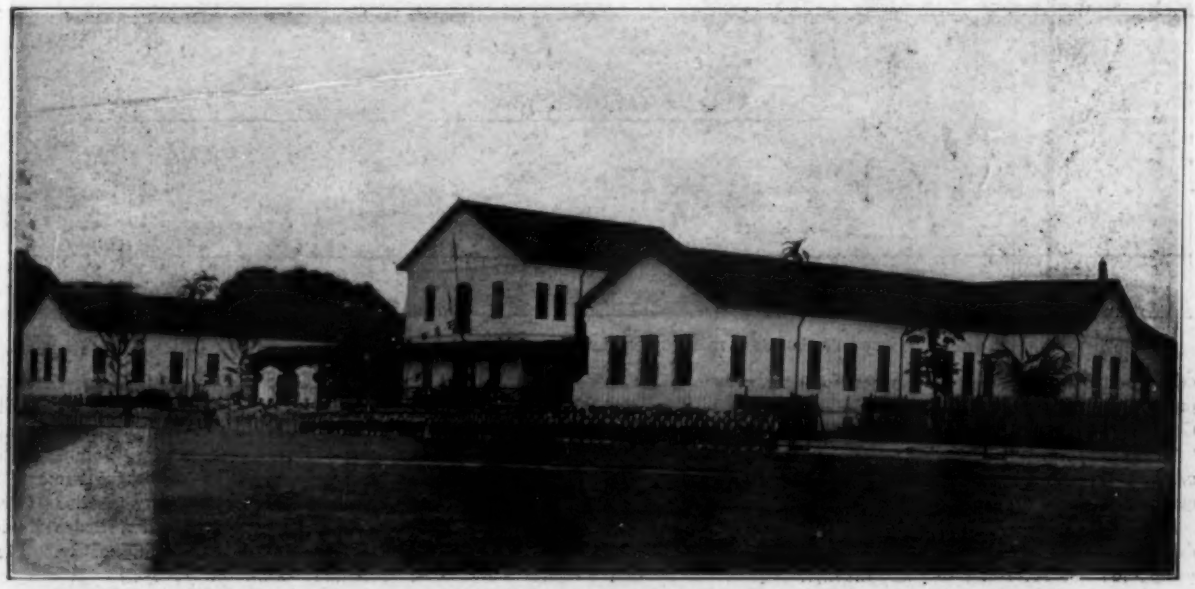
A suggestion is made to limit the application of the reduced import duties to commercial houses with a capital exceeding the equivalent of $17,000, and to co-operative associations established for this purpose.

Various other points of the proposed reforms are emphasized in later sections of this memorial.

GOVERNOR OF AMAZONAS ON THE RUBBER QUESTION.

At the recent opening of the Amazonas State Legislature, the Governor, Dr. Jonathas Pedrosa, urged that under present circumstances it would not do to remain passive, but that a radical modification should be effected of existing conditions. He urged the development of the national facilities of transport, with a view to the more efficient distribution of the products of the state.

In the motion dealing with the Governor's message, the view was expressed that as Amazonas had for more than half a century supplied the world with rubber, there was cause for disquietude in the present financial and commercial aspects of the situation. The excess of production in the East had not been duplicated in Brazil. Various points merit consideration: the antiquity of the rubber industry, and the superiority of the product, as well as of the smoking and other processes employed. All the correlative factors affecting the cultivation of rubber should be encouraged to bear their respective parts in the contemplated work.



INSTITUTE DO PRATA.

The memorial embodying the above recommendation was signed by more than a dozen members of the Amazonas legislature.

THE GOVERNOR OF PARA COMPLIMENTS DR. HUBER.

Closely upon the Rubber Congress followed the opening of the Pará State Legislature. In his inaugural address, Governor Martins referred to the cordial appreciation by the Congress of the efforts made by the State of Amazonas in behalf of rubber; expressing the unity of idea which allies these states—Pará and Amazonas—for their common welfare. The address included the following reference to Dr. Huber and his work:—

"The 'Museu Goeldi' is one of the State establishments carried on along the lines of its original purpose. In the meanwhile, through the inestimable services rendered by Dr. Huber, the museum has been remodeled in accordance with his ideas. Ground has been secured, contiguous to the museum, suitable for its agricultural work, from which good results are anticipated."

EXPERIMENTS AT MUSEU GOELDI.

In connection with the Pará Congress, an interesting series of experiments was held at the Museu Goeldi (briefly referred to in the foregoing account of the congress), illustrating various systems of rubber extraction, tapping and smoking, as well as other points relating to the rubber industry. Among those present were Governor Martins and his wife, as well as the Governor's aide, Captain Pedro Nelasco.

These experiments included tests of smoking latex with *urukuri*, according to the system of José Amando Mendes, the quantity of latex used representing about ten quarts.

Dr. Jacques Huber, director of the establishment, then conducted trials of tapping, upon trees on the spot, more than 15 years old; not according to the Brazilian method, but by that used in the East. Two instruments were employed for the respective processes, regarding which Dr. Huber gave detailed explanations to the visitors, concluding his demonstrations with one of a new tapping method of his own invention.

Appreciation was expressed of the system of Senhor Vianna Coutinho, illustrated by him.

Senhor Conrado Bastos presented results of his tapping invention.

A number of the rubber experts attending the Congress availed themselves of this opportunity of witnessing the results obtained by tapping processes new to Brazilian planters.

PERMANENT AMAZONIAN RUBBER COMMISSION.

Among the practical results of the Congress has been the establishment of a permanent sub-commission, which is now studying the following questions submitted to it September 5.

(1) What is the true situation of the national rubber industry, in view of foreign competition? (Referred to Dr. J. Huber, Amando Mendes and Leopoldo Teixeira.)

(2) What is the importance of the industry in the economic life of the country, and what is its proportion as a revenue producer? (Referred to Drs. Barroso Rebello, Francisco Coutinho, Jr., and Pedro Boulhosa.)

GROUP OF ASSISTANTS SMOKING LATEX AT MUSEU GOELDI, PARA.

(3) Does the plan of Economic Rubber Defense, decreed January 5, 1912, correspond with the necessities of the situation? (Referred to Dr. Ferreira Teixeira, Dr. Bento Miranda and Antonino de Sousa Castro.)

(4) Are the measures put in execution by the government in consequence of this decree producing satisfactory results? (Referred to Dr. Barroso Rebello, Amando Mendes, Pedro Boulhosa, Adolphe Goncalves and Francisco Coutinho, Jr. The replies were to be presented within thirty days.)

(5) Should the commission find that these measures are not the most efficacious for attaining the end in view, it should suggest others of a more effective character to safeguard the in-

terests of the country. (Referred to Drs. Barroso Rebello, Amando Mendes, Pedro Boulhosa, Adolphe Goncalves and Francisco Coutinho, Jr. The replies were to be presented within thirty days.)

BRAZILIAN LOANS.

The American Consul General at Rio de Janeiro, in his report, published in part by the Bureau of Foreign and Domestic Commerce on September 24, states that two emergency loans, both for £2,000,000 ($9,733,000) have just been negotiated in Europe, one by the Federal Government of Brazil to pay for material and supplies contracted during the year, and the other by the Sao Paulo government to assist the planters in that state to move the coffee crop; and that both of these financial measures, it is believed, will also afford relief to merchants in Rio de Janeiro and Sao Paulo, whose business recently has been paralyzed, owing to the scarcity of money in Brazil and the difficulty of securing advances from the banks at reasonable prices.

DR. PINTO'S LABORATORY IN PARA.

According to the Official Bulletin of Brazil, the Minister of Agriculture of the republic has entered into a contract with Senhor Carlos de Cerqueira Pinto, inventor of a special process for the preparation of india rubber without smoking and for the conservation of the latex of seringa, according to which the Senhor is to construct a laboratory at Pará, within a period of twelve months, for the preparation of the ingredients of his process, called "liquid seringa," "lactina" and "cauchina." This laboratory is under obligation to provide sufficent ingredients for the manufacture of 1,000 tons of india rubber as a minimum. These ingredients will be the property of the manufacturer, but he cannot export them without the consent of the Federal government or sell them in Brazil at a higher price than 200 reis (11.1 cents) for a quantity sufficient for the manufacture of 1 kilogram (2.2 lbs.) of india rubber. During the first three years of his contract, Senhor de Pinto will furnish gratuitously to the Minister of Agriculture, a sufficient quantity of his ingredients for the manufacture of 10,000 kilograms (22,046 lbs.) of rubber per annum. In remuneration for his services Senhor de Pinto will receive various sums, amounting to a total of 1,200 contos ($385,200) plus 100 reis (5.6 cents) per kilogram of rubber produced without smoking, by means of his ingredients, up to a maximum of 1,300 contos (say $417,300). He will also receive the benefit of all exemptions from taxation permitted by the law.

In twenty years Senhor de Pinto's laboratory, with all its belongings, machines, accessories, fittings, etc., will revert to the Federal government.

REORGANIZATION OF MESSRS. R. O. AHLERS & CO., PARA, AND MESSRS. AHLERS & CO., MANAOS.

The partnership under which the business of the two above houses has been conducted has recently been dissolved and new firms have been established, in both of which Mr. Rudolph Otto Ahlers and Mr. Arthur Friedrich Seligmann are interested, with the co-operation in Manáos of Messrs. George Deffner and Paul Fehre. The titles of the separate firms are: Seligmann & Co., Pará, and G. Deffner & Co., Manáos.

FOREIGN TRADE OPPORTUNITIES.

A late September report of Consul General Julius G. Lay, stationed at Rio de Janeiro, contains the information that a contract has been made by the Brazilian Government and the Sociedade Anonyma Martinelle for the establishment of a rubber refinery at Manaos, Brazil, and that American building materials, such as cement, iron and steel structural material, roofing, lumber, builders' hardware, etc., could be sold to this contractor. Offers to supply material, prices, etc., will be forwarded by this consulate general to the Sociedade Anonyma Martinelle.

ANNUAL REPORT OF THE INTERCONTINENTAL RUBBER CO.

THE annual report of the Intercontinental Rubber Co. was issued on October 6 by Secretary Walter Dutton from the company's office in Jersey City. The report includes a balance sheet and a statement of profits (as shown below) for the year ending July 31, 1913, and contains the following interesting paragraph: "The conditions in Mexico during the past year have been particularly trying. Interruptions to traffic, field and factory operations have been more frequent and more serious than in previous years. Since June 26 our Torreon factory has been entirely closed, and since 1st of June it has been impossible to communicate with Torreon, except at rare intervals, when messengers were dispatched on horseback to some other city."

The items of invested securities shown on the balance sheet represent bonds and short-time notes purchased in the market and taken at present market quotations. Regular dividends on the preferred stock have been paid during the year.

BALANCE SHEET—JULY 31, 1913.

ASSETS.

Investments in Stock of Merged and Subsidiary Companies:		
By cash	$2,115,321.59	
By stock issues	28,198,575.30	$30,313,896.89
Patents (exclusive of subsidiary companies)		15,141.77
Treasury stock (fractional shares resulting from retirement of preferred stock		2,500.00
Accounts and notes receivable, etc.:		
Advances to subsidiary companies	$677,434.85	
Sundry accounts	23,659.22	701,094.07
Investment securities (market value)		1,415,093.75
Cash		1,301,136.88
		$33,748,863.36

LIABILITIES.

Capital stock:		
Common	$29,031,000.00	
Preferred	1,250,000.00	$30,281,000.00
Accounts payable, taxes accrued, etc.:		
Due subsidiary companies	$138,233.54	
Sundry accounts	1,716.13	139,949.67
Reserve accounts		1,130,103.58
Surplus (as below)		2,197,810.11
		$33,748,863.36

SURPLUS ACCOUNT.

Surplus, August 1, 1912		$2,110,940.12
Gross profit on operations	$199,322.09	
Net income from securities, interest, etc. (after adjustment of investment securities to current market value)	61,002.05	
	$260,324.14	
Less—Administration and general expenses	54,954.15	205,369.99
		$2,316,310.11
Charges against surplus:		
Reserve against investments in and loans to subsidiary companies	$31,000.00	
Dividends paid on preferred stock	87,500.00	118,500.00
Surplus, July 31, 1913		$2,197,810.11

Effects of Overloading Solid Rubber Tires.

In our last issue we presented some figures which proved conclusively the wisdom and economy of adequate tire equipment. Since publishing that article, The B. F. Goodrich Co. has supplied us with further information regarding the detrimental effects of overloading and overspeeding solid rubber tires, and we present herewith extracts from a paper prepared by Mr. S. V. Norton, of the Goodrich Truck Tire Department, for the benefit of our readers who are interested in this important subject.

TIRE manufacturers, after years of observation and experiment, have adopted a schedule of carrying capacities, which, with but slight variations, is now considered standard. It seems hardly necessary to repeat the figures at this time for they are given in every tire manufacturer's catalog. However, the factor of safety in the schedule is nil. So many other factors enter into the matter, such as excessive strains due to bumps, depressions in the roadway, negotiating grades, overspeeding, and the severe use of brakes, that no provision has been made for overload.

Just what is meant by the overloading of rubber tires? In the process of manufacture crude gum is mixed with pigments and the whole mass is kneaded together until the compound becomes homogeneous. After various intermediate steps, the rubber is placed in a mold and vulcanized. During vulcanization the tire assumes a more or less permanent form, to which it will normally return if it is not stretched or compressed beyond certain definite limits. If the stretching or compression exceeds these limits, however, the strain will invariably cause a rupture or disintegration of the rubber.

To illustrate: Take a strong, properly vulcanized rubber band. Stretch it moderately, release it, and it will return to its normal shape. The process may be repeated indefinitely, depending upon the quality of the rubber, and the band will resume its shape. But stretch it beyond its limit of elongation and what happens? The rubber breaks and cannot be restored to its previous condition. The damage has been done and the rupture is permanent. Similarly, a piece of rubber properly vulcanized may be compressed within certain limits, released, and it will resume its normal shape. The compression may be repeated an indefinite number of times, depending upon the quality of the compound. So long as its limit of compression has not been reached, the rubber will continue to spring back into shape and nothing but abrasion or some other physical or chemical action will destroy its elasticity. Compress it beyond its limit of cohesion, however, or in other words, beyond its power of resistance, and the rubber breaks down or ruptures just as inevitably as in the case of stretching beyond its limit of elongation. The rupture is absolute and permanent. No method yet devised will restore to the unit its former elastic qualities.

There are three kinds of overloading: The first is due to undersized original tire equipment. The competition in business makes it necessary to economize wherever possible in the equipment of trucks. Manufacturers build the best machines that money and skill can devise, and offer them for sale fully guaranteed—except for tires. They usually equip them with the smallest tires that will come within the tire maker's schedule of carrying capacities. Then, if for any of the reasons mentioned later, the tires fail to deliver the service expected, the responsibility is at once automatically shifted to the tire manufacturers' shoulders, and they are expected to live up to their reputations for liberally "taking care" of their product. Suppose the sales agents order just the chassis and then have special bodies built—bodies too heavy in themselves, or so large as to permit the carrying of loads far in excess of those the tires are able to sustain without breaking down. What happens? The customers soon have trouble with their tires, and they complain that the cost of maintenance is more than they had been led to believe.

The second kind of overloading is due to mis-proportioned equipment. Sometimes we find that trucks whose tire equipment, regarded as a whole, is ample for the service required, will be lacking in carrying capacity at one end, while at the other end there may be an excess capacity over the actual demands. I have in mind a case in which we were called upon to make an adjustment. The proportion of weight carried by each axle showed that the front tires were considerably overloaded while those on the rear had an excess capacity of nearly a ton. The owner of the truck protested his innocense, saying that he had never been told he was misusing his tires. The difficulty once explained, however, and the proper-sized front tires applied, there was no further trouble.

The third kind of overloading, which is at once the most prevalent, the most illusive, and the hardest to cope with, is due to the improper loading of the commodity upon the truck. Some times this may be the result of faulty distribution of the load over the front and rear axles, which may cause the failure of the tires wholly without the knowledge of the owner.

By far the most difficult phase for the tire maker to overcome is the deliberate placing on the truck as a whole of too heavy loads for the tires to carry. In many cases, regardless of the original training and explanations given to a driver, there is always the temptation to fill the truck to the limit of its physical capacity to move the goods. The merchandise must be moved, and "a load is a load," whether it exceeds the carrying capacity of the tires or not. Unless the tire equipment has an ample margin of safety, this attitude results in poor economy.

The drawing of trailers, while more common abroad than in the United States, is another means of improperly loading tires. No doubt this is an economical means of hauling, but trucks so engaged are placing a greater strain upon their tires, and they should be at least the next size larger than those which would safely carry the truck without a trailer.

Turning now to the effects of overspeeding on solid tires, three things should be considered: They seem so axiomatic that they need only to be mentioned briefly. First, it generates excessive heat in the tires, which tends to shorten the life of the rubber. Even tho not overloaded, they may be driven so fast that they are "burnt up," as it were, in a very short time. Second, it accentuates shocks and jars due to unevenness in the roadway. The stresses thus set up are really the equivalent of sudden overloads, and they tend just as effectively to cause the premature failure of the tires as tho they were loaded beyond their capacity. Third, overspeeding induces the severe use of brakes, especially in thoroughfares in which there is much traffic. This in turn is apt to cause unnecessary friction with the road surface which, of course, wears out the tires promptly.

Of imports amounting to $68,126,292 from London to the United States for the first half of 1913, crude rubber represented a value of $14,481,358.

Rubber in the New Tariff.

SINCE the introduction of the new tariff measure, the portions affecting rubber have been subjected to only slight modifications, its original provisions having been in general adopted in the final passage of the bill on October 3. Hence the remarks on the subject of THE INDIA RUBBER WORLD in the issue of May 1, page 403, are still to a large extent applicable, while the revised details of the rates in another column bring the information up to date.

That much preliminary work had been done in committee is evident from the fact that two important points affecting crude and waste rubber were provided for by the new measure in accordance with the desires of the rubber trade.

CRUDE RUBBER AND GUTTA PERCHA.

The attempts which had recently been made in France—without success—to impose a duty on crude rubber tended to support the arguments of American manufacturers on the subject. One of the most effective weapons in this struggle was the brief of the Rubber Club of America, submitted on March 29, 1912, to the Committee of Ways and Means, which was supported by telegrams from various important rubber manufacturers. Opposition to the suggested duty on rubber was still actively carried on, with the result that the bill as presented to the House on April 8, 1913, retained crude rubber and gutta percha in the free list.

SCRAP RUBBER.

In accordance with the representations of the waste trade, the new measure omitted the clause which restricted the free entry of scrap to such as had been worn out by use.

MATERIALS FOR RUBBER MANUFACTURE.

With the desire to let rubber manufacturers share in the general reduction of duties on materials, the rates on many important articles had been reduced in committee. A further cut was in various cases made during the discussion of the bill, which, in its final shape, displays marked reductions in various leading lines, as compared with the Payne tariff; all of which are shown in detail by the annexed table. Prominent among these changes is the transfer to the free list of sulphuric acid and flowers of sulphur, which have hitherto paid duties equal to 8.63 per cent., and 13.73 per cent. Of course, the exact benefit which American makers will derive from these reduced duties depends upon the extent to which they are reflected in the quotations of chemical manufacturers and dealers.

COTTON FABRICS.

Textile goods constitute such an important part of the purchases of rubber manufacturers, that the sweeping reductions in this schedule require careful study as to their special application to individual requirements. The item of most interest to manufacturers will doubtless be paragraph 262, by which tire fabrics are cut from 45 per cent. to 25 per cent., while cotton fabrics not otherwise specified are reduced by paragraph 266 to 30 per cent. Here the special needs of individual makers will in each case govern the amount of benefit they will derive from tariff changes in such cotton articles as are employed in the further manufacture of their goods.

Those manufacturers who contemplate weaving their own tire fabrics will be interested in paragraph 250, dealing with cotton yarns in various counts.

Belting of cotton and rubber is reduced by paragraph 262 from 30 per cent. to 15 per cent., while waterproof cotton cloth containing rubber now pays, under paragraph 254, 25 per cent. instead of the compound duty equaling about 50 per cent.

CABLES.

By paragraph 114, telegraph, telephone and other wire composed of metal and rubber, is subjected to 15 per cent., while the compound duty hitherto levied has equalled 52 per cent.

ASBESTOS.

Crude asbestos remains upon the free list. Efforts were made during the hearings before the committee to obtain a uniform rate of 40 per cent. on asbestos yarns and woven cloths. The principle of a uniform rate has been conceded, but only to the extent of 20 per cent. instead of 40 per cent., as previously. Manufactures of asbestos not specially provided for pay 10 per cent. instead of 25 per cent., as hitherto.

AUTOMOBILE TIRES AND BICYCLE TIRES.

These being specially excepted from the higher duty on parts of automobiles, would apparently fall into the "basket" clause of unspecified rubber goods at 10 per cent.

RUBBER MANUFACTURES.

The satisfaction experienced by rubber manufacturers at the lower rates on materials, diminishing cost of production, has been qualified by the sweeping reduction made in the duties on rubber goods, which now stand (instead of 35 per cent. and 40 per cent.) at 15 per cent. for druggists' sundries, 25 per cent. for hard rubber goods, and 10 per cent. for articles not otherwise specified. To what extent this reduction will be offset by lower costs resulting from the operation of the tariff on materials, can only be determined by the maker's calculations in each particular instance. Economy in cost of production must now, more than ever, be the watchword of the rubber manufacturer.

In view of the reduction in duties of rubber manufactures having only been made public on the introduction of the bill, these provisions have not had the opportunity of being subjected to the same amount of detailed criticism as other portions of the measure. Still the new tariff is in operation and the actual results of its working have yet to be experienced.

TARIFF TROUBLES.

Where there is a "basket" clause, into which unspecified articles automatically fall, watchfulness is required on the part of manufacturers to see that any competing goods pay duty under proper classifications at the normal tariff rates. This involves of course a good deal of detail, but such work would be repaid by the fair adjustment of tariff rates. The application of a new tariff always causes at first a little confusion until its provisions are in working order and the right classifications established. For some time to come the decisions of the inevitable disputes between importers and the government officials will form a series of precedents, of value in future cases. When the present German tariff was inaugurated, a supplementary hand book giving the different classifications was issued for the guidance alike of government officials and importers. Such a compendium will doubtless in time be issued here, as the provisions of the tariff in many cases require interpretation, and the gradual experience to be gathered by those interested in the operation of the tariff will prove a valuable guide in cases of difference of opinion as to the classification of imported products entering into competition with those of American manufacturers.

SUMMARY OF RUBBER TARIFF CHANGES.

	1909 Payne Tariff		1913 Underwood Tariff	
Free list—	Paragraph	Duty	Paragraph	Duty
Asbestos	502	free	406	free
Gutta percha	582	free	502	free
Crude rubber	591	free	513	free
Waste rubber	591	free	513	free
Schedule N—				
Rubber manufactures (not specified)	N. 463	35%	N. 368	10
Gutta percha manufactures (not specified)	N. 464	35%	N. 368	10
Sponges	N. 464	40%	....	..
Druggists' sundries	...	35%	N. 368	15%
Hard rubber	...	35%	N. 369	25%
Asbestos, woven and yarn	N. 462	40%	N. 367	20%
Asbestos, n. sp.	N. 462	25%	N. 367	10%
Schedule C—				
Telegraph, Telephone wires, etc.	C. 135	40%	C. 114	15%
Card clothing, rubber faced	C. 145	55 c. sq. ft.	C. 124	35%
Rivets for tires	C. 167	45%	C. 138	20%
Penholders with rubber erasers	C. 187	40%	C. 157	25%
Schedule I—Cottons—				
Waterproof cloth	347	10c. sq. yd & 20%	254	25%
Clothing	I. 324	50%	256	30%
Tire fabrics	I. 330	45%	262	25%
Belting	I. 330	30%	262	15%
Cotton cloths, not specified	I. 332	45%	266	30%
Bandings, etc.	I. 330	45%	262	25%
Schedule J—Manufactures of flax—				
Bandings	...	....	278	30%
Clothing	...	....	278	40%
Schedule K—Manufactures of wool—				
Clothing	K. 332	44c. lb. & 60 %	291	35%
Bandings	K. 383	50c. lb. & 60%	292	35%
Schedule L—Manufactures of silk—				
Bandings	L. 402	60%	316	45%
Clothing	L. 402	60%	317	50%
Woven fabrics (Including those with rubber.)	L. 403	50%	318	45%

COMPARATIVE TABLE OF DUTIES UNDER THE PAYNE TARIFF AND THE UNDERWOOD TARIFF ON CHEMICALS USED IN RUBBER MANUFACTURE.

		Payne tariff Rate	Payne tariff Equal to	Paragraph	Underwood tariff Rate	Underwood tariff Equal to
Acids—						
Carbolic	.....	free	free	387	free	free
Hydrochloric or muriatic	.....	free	free	387	free	free
Sulphuric	pound	¼c.	8.63%	387	free	free
Ammonia—Carbonate	pound	1½c.	27.73%	7	¾c.	13.86%
Antimony—Oxides, salts and compounds	pound	1½c. & 25%	57.38%	144	25%	25%
Asphaltum or Bitumen—						
Crude	ton	$1.50	35.28%	76	50c.	11.76%
Manufactured	ton	$3.00	29.63%	76	$1	9.88%
Balsams (crude)—						
Canada	.....	free	free	9	10%	10%
Storax	.....	free	free	9	10%	10%
Tolu	.....	free	free	9	10%	10%
Burgundy pitch	.....	free	free	437	free	free
Cadmium	.....	free	free	439	free	free
Chalk—						
Unmanufactured	.....	free	free	446	free	free
Ground, bolted, etc.	pound	1c.	39.37%	15	25%	25%
Calcium—Chloride	.....	25%	25%	440	free	free
Coal Tar—						
Crude and pitch	.....	free	free	452	free	free
Non-medicinal products etc.	.....	free	free	22	5%	5%
Emery, etc.—						
Ore	.....	free	free	479	free	free
Grains and ground	pound	1c.	16.98%	343	1c.	16.98%
Fullers Earth—						
Crude	ton	$1.50	19.32%	76	75c.	9.66%
Manufactured	ton	$3.00	32.65%	76	$1.50	16.32%
Glycerine—						
Crude	pound	1c.	11.29%	35	1c.	11.29%
Refined	pound	3c.	10.63%	35	2c.	7.09%
Gums—Copal, Kauri and Damar	.....	free	free	500	free	free
Lanolin and wool grease	.....	....	....	498	free	free
Magnesia—Calcined	pound	7c.	43.27%	42	3½c.	21.63%
Mica and manufactures	pound	5c. & 120%	36.31%	77	30%	30%
Oils—						
Castor	gallon	35c.	34.94%	45	15%	15%
Cottonseed	.....	free	free	561	free	free
Linseed	gallon	15c.	27.11%	45	10c.	18.08%
Palm	.....	free	free	561	free	free
Rapeseed	gallon	10c.	23.06%	45	6c.	13.83%
Barytes—						
Unmanufactured	ton	$1.50	59.11%	51	15%	15%
Manufactured	ton	$5.25	52.11%	51	20%	20%
Black pigments	.....	25%	25%	53	15%	15%
Blues—						
Prussian	pound	8c.	44.23%	52	20%	20%
Ultramarine	pound	3c.	32.22%	52	15%	15%
Oxide of Cobalt	pound	25c.	24.14%	24	10c.	9.93%
Green—Chrome	pound	4¼c.	25.98%	54	20%	20%
Lead pigment—Litharge	pound	2½c.	53.32%	56	25%	25%
Reds—						
Vermilion containing quicksilver, etc.	pound	10c.	17.53%	59	15%	15%
Vermilion without quicksilver etc.	pound	4¾c.	29.41%	59	25%	25%
Whites—Whiting and Paris white	pound	¼c.	43.98%	60	1/10c.	17.50%
Zinc—						
Oxide, ground dry	.....	....	....	61	10%	10%
Oxide, ground in oil, etc.	.....	....	....	61	15%	15%
Lithopone, etc.	.....	....	....	61	15%	15%
Plumbago	.....	free	free	579	free	free
Potash—Bichromate	pound	2¼c.	45.86%	64	1c.	20%
Stone—						
Pumice, unmanufactured	pound	....	....	75	5%	5%
Wholly or partly manufactured	pound	....	....	75	¾c.	....
Sulphur—Flowers	ton	$4	13.73%	617	free	free
Talcum	.....	35%	35%	69	15%	15%
Turpentine—Venice	.....	free	free	635	free	free
Wax—Vegetable or mineral	.....	free	free	641	free	free

THE TARIFF ON RUBBER FOR THE PAST EIGHTY YEARS.

JUST at present the most interesting matter occupying the minds of rubber manufacturers, and dealers also, is the new tariff law and its possible effects. In view of the general interest in this topic it seems quite appropriate to give a brief survey of all the American tariff bills which have referred in any way to rubber.

The first tariff act that mentioned rubber was the act of July 14, 1832. Very naturally, that exempted rubber from duty. As there were practically no rubber manufacturers in the United States at that time there obviously was no particular need for protection. To be sure there were a number of people trying to make articles out of rubber, but they had not succeeded in any commercial sense. But quite a little crude rubber was being imported—largely into the port of Salem—which was being used by experimenters in an attempt to find some method or process by which practical articles could be manufactured out of rubber. The only importations of rubber goods coming into the country at that time consisted of rubber shoes, clumsy and crude in shape, made by the natives along the Amazon. These shoes, notwithstanding their weight and absolute lack of any approach to graceful lines, served to keep the feet dry and had reached quite a sale in New England.

Since 1832 there have been, including the Underwood act, twelve different acts referring to rubber. The last two—the Payne-Aldrich and the Underwood—are mentioned in detail in another article. The other ten acts are briefly outlined below.

THE ACT OF JULY 14, 1832, makes first mention of rubber as a dutiable article by exempting it from duty.

THE ACT OF AUGUST 30, 1842, imposes an ad valorem duty of 30 per cent. on rubber "oil cloth," webbing, shoes, braces or suspenders or other fabrics or manufactured articles composed wholly or in part of rubber.

THE ACT OF JULY 30, 1846, WALKER TARIFF, imposed an ad valorem duty of 30 per cent. on braces, suspenders, webbing or other fabrics composed wholly or in part of rubber not otherwise provided for, and 10 per cent. ad valorem on rubber in bottles, slabs or sheets, unmanufactured.

THE ACT OF AUGUST 5, 1861, MORRILL TARIFF, made the tariff on crude or unmanufactured india-rubber 10 per cent. ad valorem; on rubber boots and shoes, 30 per cent. ad valorem.

THE ACT OF JULY 14, 1862, imposed a 50 per cent. ad valorem duty on manufactures of rubber, or silk and rubber, or rubber, silk and other materials, and 10 per cent. ad valorem on rubber milk.

THE ACT OF JUNE 6, 1872, made a horizontal reduction from existing rates of 10 per cent. on all manufactures of india-rubber and gutta percha.

THE ACT OF MARCH 3, 1883, placed a duty of 25 per cent. ad valorem on rubber boots and shoes; of 30 per cent. ad valorem on fabrics made wholly or in part of rubber, not specially enumerated; on other articles not specially enumerated made wholly of rubber, of 25 per cent., and of 30 per cent. ad valorem on combs of all kinds.

THE ACT OF OCTOBER, 1890, MCKINLEY TARIFF, placed raw rubber, rubber milk, old scrap or refuse worn-out rubber, fit only for re-manufacture, on the free list. A duty of 35 per cent. ad valorem was imposed on manufactures of gutta percha, vulcanized or hard rubber, or articles of which they are the chief component; and on manufactures of rubber not specially provided for a duty of 30 per cent. ad valorem was imposed.

THE WILSON TARIFF OF 1894 provides for the free entry of crude rubber, old scrap and waste rubber worn out by use and fit only for re-manufacture; gutta percha and asbestos. It imposes a duty of 25 per cent. ad valorem on articles made of India rubber, or of which India rubber is the component of chief value, the same duty being imposed upon manufactures of asbestos. Manufactures of gutta percha and hard rubber carry a duty of 30 per cent. ad valorem.

THE ACT OF JULY 24, 1897—DINGLEY TARIFF, exempted crude rubber, rubber milk and scrap fit only for re-manufacturing, from duty.

Par. 314 of Schedule I, which imposes a duty of 50 per cent. on ready made clothing, provides that any outside garment referred to in the paragraph, having rubber as a component material, shall pay a duty of 50 per cent. ad valorem and 15 cents per pound. Webs and webbing, wholly or in part of silk, into which rubber enters, 50 per cent. ad valorem; manufactures of india-rubber or in which it is the chief component, 30 per cent. ad valorem; suspenders, braces, beltings, bindings, etc., in part of rubber, 45 per cent. ad valorem; manufactures of hard rubber, 35 per cent. ad valorem; manufactures of silk or having silk as component of chief value, containing rubber, not otherwise specified, 60 per cent. ad valorem; gloves excepted.

WORLD'S COMPARATIVE PRODUCTION OF WILD AND PLANTATION RUBBER.

IN dealing with the general statistics of the world's rubber production, there has been some difficulty in the past, arising from the want of a uniform basis for showing the comparative output of wild and plantation rubber during identical periods. This obstacle has been overcome in the statistical returns lately published by the "Superintendencia da Defesa da Borracha," of Rio de Janeiro, the location of the Brazilian Department of Agriculture, which now deals with rubber.

These figures (a summary of which is reproduced below) show that during the first five months of the years 1910 to 1913, wild rubber has practically remained stationary, while plantation rubber represents an increased production during that period of about 11,000 tons or about equal to 26,000 tons a year. According to Brazilian estimates, the world's total rubber output had increased for the first five months, from 26,632 tons in 1910 to 37,458 tons in 1913, the equivalents for twelve months being thus respectively 64,000 and 90,000 tons. This last named annual figure has been more or less the basis of recent English statistical reports.

With the Brazilian figures including actual shipments up to the latter part of May, a standpoint is afforded for the further discussion of the comparative production of wild and plantation rubber.

The details of origin and distribution of the above-named quantities will be dealt with in a future table.

WORLD'S COMPARATIVE PRODUCTION OF WILD AND PLANTATION RUBBER.

ANALYSIS OF BRAZILIAN ESTIMATES FOR FIRST FIVE MONTHS OF YEARS 1910 TO 1913.

	1910. Tons.	1911. Tons.	1912. Tons.	1913. Tons.
World's production of wild rubber for five months	24,159	22,821	23,707	22,928
World's production of plantation rubber for five months	2,473	4,555	8,709	14,530
Grand total for five months	26,632	27,376	32,416	37,458

EQUALLING APPROXIMATELY FOR TWELVE MONTHS.

	1910.		1911.		1912.		1913.	
	Tons.	About Per Cent.	Tons.	About Per Cent.	Tons.	About Per Cent.	Tons.	About Per Cent.
Wild	58,000	90	54,000	84	55,000	71	54,000	60
Plantation	6,000	10	11,000	16	23,000	29	36,000	40
Estimate 12 months	64,000	100	65,000	100	78,000	100	90,000	100

Singapore the World's Future Rubber Market.

By Our Special Correspondent.

OF Malayan rubber there will be produced this year some 38,000 tons—32,000 tons from the Peninsula, and 6,000 tons from the rest. Next year, 1914, the Malayan yield may be safely put at 55,000 tons (Ceylon at 18,000); for 1915, 75,000 tons, rising to 140,000 tons by 1917 or so. This means that from 1914 onwards Singapore will dispose of more than half of the world's supply of rubber. The controlling market for plantation rubber will therefore be Singapore, not London.

I have recently gone into the comparative statistics of shipments and markets, and I find that America can now buy rubber much more cheaply in Singapore than in London and ship direct. Assuming the London price for good average smoked sheet to be, say, 2s. 4d. per lb. the costs of buying it in London are roughly as follows, taking 100,000 lbs. as a basis:

	£	s.	d.	Equivalent in American Money.
1. Handling, delivery on board, wharfage and harbor dues, etc., and sundry expenses, about 1s. 3d. per case, 700 cases	43	15	0	$212.63
2. Insurance on 100,000 lbs. @ 2s. 4d.= £11,666 13s. 4d. @ ⅛ per cent.	14	12	0	70.96
3. Interest on £11,680 @ 4 per cent. for 30 days	38	18	0	189.06
4. Freight on 70 tons cube @, say, 10s. per ton	35	0	0	170.10
5. Loss in weight, say, ½ per cent.	58	7	0	283.58
6. Commission @ ½ per cent.	58	7	0	283.58
Estimated total of costs, C. I. F. New York.	£248	19	0	$1,209.92

This is equal to .6d. per lb. This is only a rough estimate, but the costs will certainly be ½d. per lb. at present prices.

The costs of purchase in the open market in Singapore and shipping direct to New York of the same rubber with the London quotation at 2s. 4d. are approximately as follows, taking, say, 1,000 piculs (local unit)—133,333 lbs.—and calculating in Straits dollars (2s. 4d.) the exchange being taken at 2s. 4½d., the purchase price is assumed at $122 per picul, which = 91.5 cents (Straits currency) or 2s. 2.1d. per pound. (The factor for converting $1 per picul into pence per lb., exchange @ 2s. 4½d., is .2137.)

1,000 piculs @ $122 = $122,000—the purchase price.

	Straits Currency.
1. Handling, sorting, repacking, new cases, etc. and delivery on board @ 1½ cents per lb.	$2,000.00
2. Interest @ 6 per cent., for 90 days	1,875.00
3. Insurance @ ¾ per cent. on $126,000	472.50
4. Freight @ 70s. ($30) per ton cube of 50 feet, 133,333 lbs. will require about 900 cases = 90 tons	2,700.00
5. Loss in weight, say, 1 per cent. allowed	1,220.00
6. Commission @ ½ per cent.	610.00
Estimated total of costs, C. I. F. New York	$8,877.50

This equals 6.65 cents per lb. ($8,877.50 = £1,054 7s.) or, roughly, 1.9d. per lb. The landing charges in New York are, of course, not included in either account.

The difference is at least 1.3d., and may be taken at, roughly, 1½d. per lb. between purchase in London and purchase in Singapore. This means that rubber purchased here at 2d. per lb. under the London market can be landed in New York at the same price that it costs to purchase this rubber in London, thus saving all the freight, shipping costs and commission, etc., on rubber bought in London.

This means 2 per cent. on the outlay saved. We, in Singapore, would benefit largely by this also as at present we are not getting more than 2s. per lb. as parity with London at 2s. 4d. owing to the absurd extra charges amounting to about 5 per cent. which are now foisted on us at the London end for absolutely no services rendered. This you have to pay for when you buy in London.

Singapore would be very glad to establish a direct connection with American consumers on a large scale, on a basis of delivery in New York at the London quotation. There are many advantages in this. The consumers would get the rubber direct from the estates without any of the hopeless mixing of breeds that takes place in London. There are fully 1,000 tons of rubber now sold locally per month, mostly speculative purchases for resale. Three hundred to 500 tons per week could be had quite easily in a very short time. Standard samples would have to be kept and any quantity of any sample could be purchased direct in bulk.

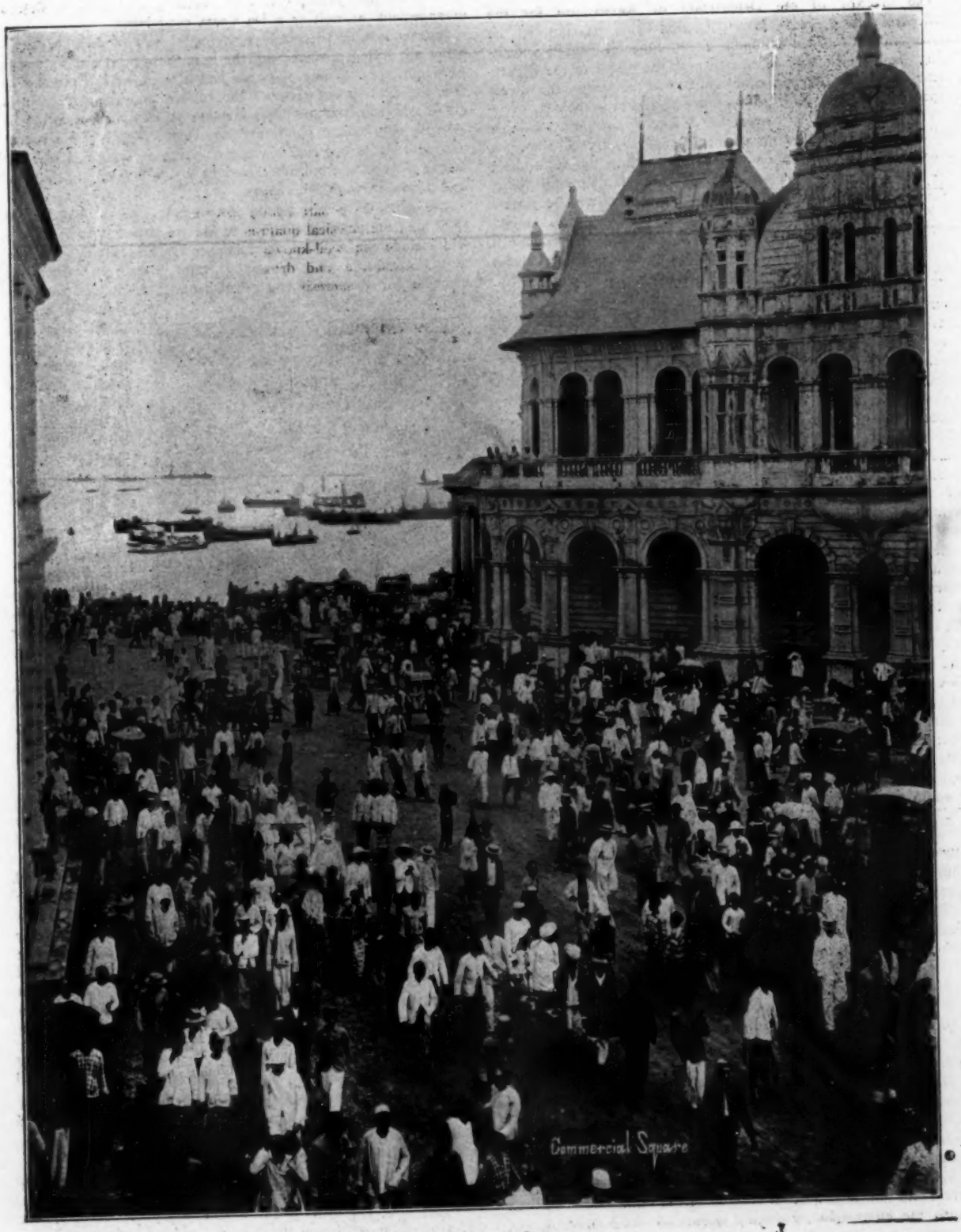
Most estates would prefer to sell here now if there was an assured free market, and we are now organizing a Malaya Rubber Growers' Association here in order to accomplish this. They would thus get their money at once instead of having to wait two months for it, which is a big consideration for most properties now, with the fall in the price of rubber. The only estates which will continue to sell to London are those which are under agreement with London agents to sell through them for a term of years. This will not affect one-quarter of the planted area, tho, and shareholders are beginning to kick at losing 5 per cent. of their revenue for nothing. American consumers would thus find a great advantage in dealing here direct, especially on a cash basis.

All the rubber purchased in London for America is mixed up, and one lot may consist of breaks from Ceylon, Straits, Borneo, and Sumatra, etc., all different climates; and the rubber, altho exact in appearance, will give quite different reactions. By purchase here the consumer would know even the estate every parcel came from. As I have read THE INDIA RUBBER WORLD for some nine years I know a little about the manufacturers' end of the question in America.

Germany and France are also aiming at direct purchase here in bulk instead of purchase in London.

The rubber which is at this moment being sold in Singapore is the poorer quality only, as owing to our present subordination to the London market it actually pays to ship the best rubber there still, owing to lack of local buying orders. This would disappear in a week if only estates could be assured of genuine sale to consumers here. In fact if large and regular buying orders were to be sent direct, on agreed standardized samples, further considerable savings could be made in handling, etc.

Judging from many conversations which I have had with Americans out here, I gather that knowledge of the details of the Mid-East planting industry is fairly vague and I believe that they should be at once informed in view of the fact that in the future your manufacturers will be drawing the bulk of their supplies from us.



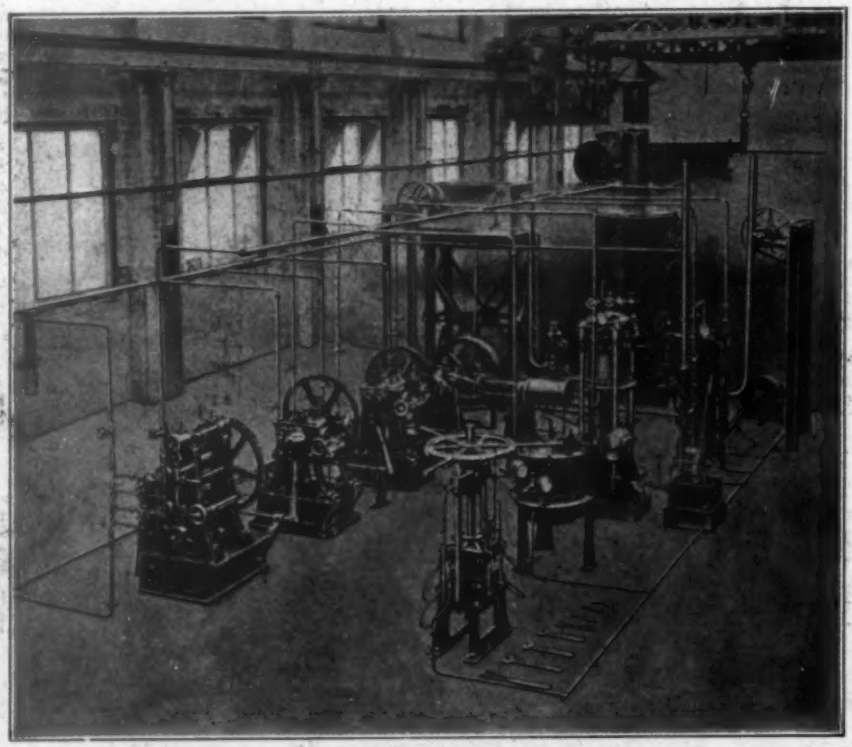
A BUSY SQUARE IN SINGAPORE.

THE DEPARTMENT OF AGRICULTURE INSTALLS AN EXPERIMENTAL PLANT.

The director of the Department of Agriculture for the Federated Malay States, Mr. L. Lewton-Brain, has induced the Government to order a complete experimental rubber vulcanizing plant, which is to be erected near the offices of the department in Kuala Lumpur, and which will be under the direct supervision of Mr. B. J. Eaton, chief agricultural chemist.

The entire plant is housed in a special and most suitable building, constructed of brick, with roof of French tiles. It consists of one room 30 feet x 30 feet in which the vulcanizing machinery will be installed, together with an adjoining room, 30 feet x 15 feet, in which the testing apparatus will be placed. A veranda, measuring 30 feet x 12 feet with expanded metal sides, which runs along one side of the building, will contain a vertical steam boiler with steam pump, injector, horizontal steam engine, donkey pump for boiler feed purposes, etc.

The installation of rubber machinery now includes one washer with duplicate rolls 9 inches x 4½ inches, one pair of which are made from a special mixture of metal to prevent rust. This machine is provided with covered worm and worm wheel adjustment, and with cast aluminum tray for receiving the washed rubber. It is also fitted with cold water and steam connections, so that hot or cold water can be used in washing, the water passing through a specially designed aluminum water spray.



EXPERIMENTAL RUBBER VULCANIZING INSTALLATION.

The mixer has chilled rolls 9 inches x 4½ inches and is provided with cold water and steam arrangements, so that it can be worked hot or cold.

The calender is a three-roll machine with iron rolls 9 inches x 4½ inches and arranged for steam heating and water cooling. The calender is practically a universal one, i. e., all three rolls can be run at even speed, or any two can be run at even speed while the third runs at friction.

Included in the installation is a screw vulcanizing press with three steam-heated platens, and a jacketed heater for either wet or dry steam. There is also an autoclave press or combined hydraulic press and vulcanizer, operated by means of a hand hydraulic pump.

Since vacuum drying is used by some planters and manufacturers and not by others, on account of the difference of opinion as to the effect of this drying system on the rubber, it was thought advisable to install a small vacuum drying plant, this being complete with vacuum chamber provided with steam-heated platens, condenser, receiver, and vacuum pump driven by means of belt. In connection with the vacuum dryer is provided a "Dacostidge" patent combined smoking and vacuum drying arrangement, as well as a Da Costa coagulator.

Independent of the vacuum drying system there is provided a hot air drying arrangement, the heat being produced by means of steam pipes. These pipes are laid in a convenient position so that the heat passes through the rubber, and the moist air is drawn off from suitable ducts through an exhaust fan driven by belt through counter-shaft from the steam engine. In conjunction with the drying chamber is a smoking arrangement whereby smoke may be injected, if desired, at the bottom of the chamber and drawn through the rubber.

The most up-to-date testing instruments will be used for ascertaining the physical qualities of the vulcanized rubber. These will include the well-known Schopper machine fitted with hysteresis apparatus and driven by water pressure, a Schwartz machine for hysteresis and permanent-set tests, abrasion machines for testing discs, rings and balls of vulcanized rubber, a machine designed by Professor Martens of the Royal Prussian Testing Station for alternately stretching and releasing test rings, a Breuil elastodurameter, viscosity apparatus and a motor-driven centrifugal machine for analytical purposes, etc., etc.

The department has already a rubber factory of its own, which includes two washing machines, consisting of one washer with even speed rollers for preparing sheet and one machine with diamond-cut rollers unevenly geared for the manufacture of crepe. In these machines, the rubber obtained from trees on about 150 acres of the Experimental Plantation attached to the department is treated. A special drying room with steam pipes for heating, and provided with an exhaust fan also adjoins the factory, steam being generated in a small vertical boiler outside the building. A small smoke house is also used for preparing smoked sheet.

The department is also fortunate in having two other estates in bearing, with factories, etc., in course of erection, where experiments can be carried on under supervision. Various novel designs and labor saving devices have been embodied in the construction of coagulating, drying and smoke rooms in connection with the factories on these departmental estates.

In addition, the department is able to co-operate with the majority of the estates in the country, and rubber samples prepared by planters will be examined as desired and reported upon, recommendations being made when necessary on the results obtained. The work which can be carried out with this plant

should be of great benefit not only to the plantation industry of the country but to manufacturers, who are often not prepared to experiment with what may be called in one respect a new product, from the fact that up till the present such considerable variations have been found in plantation Pará rubber from different estates.

A CIRCULAR ON "ELASTIC CLOTH" ISSUED IN 1857.

A CURIOSITY in the history of elastic fabrics is shown herewith, the recent find of one of our correspondents. It is a circular issued by the American Elastic Cloth Co. 56 years ago. Previous to 1860 the manufacture of elastic fabric or elastic "goring," as it is called, was practically confined to Europe, and mainly to mills in Great Britain. Most of the goods then used in the United States were of English manufacture.

ELASTIC CLOTH.

TO BOOT AND SHOE MANUFACTURERS AND THE PUBLIC.

Your attention is invited to A NEW INVENTION of an article called "ELASTIC CLOTH," for which Letters Patent have been granted by the United States and in Europe.

This ELASTIC CLOTH, is entirely different from any other article before made or used for any purpose requiring elasticity. It has been examined and tested by manufacturers of long experience in the manufacture of Boots and Shoes in New-York and Massachusetts, and is pronounced by them to be superior to any other kind of elastic goods for their use.

This Elastic Cloth, is perfectly adapted for Gores of Boots and Shoes, which the wearer finds to be easy to the foot, it being smooth on both sides, soft, pliant, and destitute of the coarse ridges and uneven surface on the inside, which is so annoying, particularly to persons having tender feet. From its smooth surface on the outside, it more easily resembles the Cloth or Leather of the Boot or Shoe, and does not collect and retain so easily the dirt and dust, which is one of the great objections to all other elastic goods, but can be so readily brushed from it as to keep other part of the shoe. It is also equally well adapted to any other purposes for which elastic goods are used, viz: Suspenders, Belts, Garters, Pantaloon Supporters, Braces, Elastics, Bandages for the back of Vests, Pantaloons, &c.

The Silk and Cotton fabric used in the manufacture of this Elastic Cloth, is woven expressly for that purpose, in a new kind of loom, in a peculiar manner, to give it the required elasticity, for which a Patent was granted by the United States to John Healy, 1846.

A Patent was also granted by the United States for a new invention of machinery, used in the process of manufacturing this Elastic Cloth, to Tyer & Helm, 1855.

Another Patent was also granted by the United States for this Elastic Cloth AS A MANUFACTURE, to Tyer & Helm, 1856.

THE AMERICAN ELASTIC CLOTH COMPANY, organized under the General law of the State of New-Jersey, are the SOLE AND EXCLUSIVE OWNERS of the above named Patents, and as this Company or the manufacturer, sole, or use of this Elastic Cloth, do not infringe or trespass upon the rights or Patents owned by others, they will hold to a strict accountability any violation or infringement of their rights.

This Elastic Cloth, possessing in many respects advantages superior to any other kind of elastic goods, and is in no respect inferior to any, is recommended and now offered to the public by the

AMERICAN ELASTIC CLOTH COMPANY

New-Brunswick, New-Jersey, February 1, 1857.

The first American patent for machinery for manufacturing these fabrics was granted in 1846 to John Healy, and this was followed by other patents granted in 1856 and 1857, since which time inventions for the manufacture of elastic fabrics or elastic "goring," have been numerous.

In America, the Elastic Cloth Co. commenced the production of this article in 1857 in New Brunswick, New Jersey, and the circular reproduced here was issued that year. This circular, which had been laid away, carefully folded to about the size of a common envelope, has become worn and frayed at the edges and the folds badly stained, but is quite legible and is interesting as a piece of early literature of this business.

A large proportion of the manufacture of these fabrics in this country was in the hands of skilled foreign workmen, mostly English, and the machines employed were also imported. In fact, every equipment of an American goring mill necessitated the importation of foreign workmen and generally foreign managers or superintendents. It was stated that ten years ago at least three-fourths of the skilled workmen manufacturing these fabrics were of English birth or parentage and of the remainder a large proportion were German.

However, in the production of elastic fabrics today the Americans have come forward with rapid strides and much of the machinery now used is manufactured in this country, and the number of American workmen now equals, if it does not exceed, those of European birth.

A large proportion of the products of American factories has been applied to the manufacture of suspenders and to goring for shoes, but the steady decline in popularity of the so-called "Congress shoe" has resulted in the closing of some factories devoted to this special branch of the business. However, new uses are steadily being found for elastic fabrics and great quantities are now used in various articles of ladies' wearing apparel, in surgical bandages, and in other ways, so that the manufacture of goods composed of textiles combined with rubber thread has increased materially since the time when this somewhat quaint circular was issued.

AUTOMOBILE TIRES RESPOND TO GOOD TREATMENT.

F. A. HENDERSON, manager of the Adjusting Department of the Goodyear Tire & Rubber Co., has recently sent out considerable literature on the treatment of tires, in connection with this company's "Educational Campaign." In a late contribution from this source, while admitting that tires are necessarily subjected to more or less ill-usage on account of rough roads, etc., the statement is made that neglect of the important details of wheel alignment, distribution of weight and proper inflation, contributes largely to excessive tire bills. Sand blisters and mud boils he attributes to neglect of tire cuts, and these lead to the stripping apart of the rubber from the fabric; so that small cuts should at once be cleansed with gasoline, filled with cement and quick repair gum, while larger ones should be vulcanized at the earliest possible moment. He goes on to state that an axle even slightly out of true subjects the tire to a grinding action which shortens its life; when the rubber is worn away and moisture is permitted to penetrate the fabric of the tire, this begins to deteriorate and lose its strength, which otherwise it might have retained indefinitely.

An improper adjustment of brakes, where one tire alone stops the load, is another cause of destruction of the tread, the tire being subjected to severe grinding on the roadway. Brakes should be adjusted to distribute the strain, and sudden stops should be avoided. The wearing off of the tread and consequent weakening of the fabric invites blow-outs, the air pressure in the tube, with the weight and strain of the heavy car, becoming too great for the container or casing. Small cuts or stone bruises, or even a short ride on a deflated or partly deflated tire will weaken the fabric, and when once started it usually continues to the blow-out stage. Overloading is also given as a frequent cause of tire troubles. Pneumatic tires are designed to carry loads in proportion to their cross sections and diameters, and a 5 per cent. addition to the weight of the car adds 15 per cent. to the wear and tear of the tire, therefore he considers it economy always to adopt tires one or two sizes larger than the regular requirements of the car. The tremendous horse power of some high-priced machines produces an effect on tires similar to over-loading. Proper chain adjustment is advised, also examination of rims for dents, irregularities and rust, all of which should be guarded against. He advises against the purchase of tires that have been displayed in the dealer's windows, against storage in warm quarters, exposure to the sun's rays and to oil of any kind, and suggests that an idle car be jacked up and the tires thus relieved of all unnecessary strain.

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Country of the Amazon; Rubber Trade Directory of the World.

Working in a Rubber Factory.

By Lucy Case Gowin.

[The writer of this article is the wife of the Professor of Sociology in Wesleyan University. She entered a rubber footwear factory and learned to make rubber shoes for the purpose of studying the conditions under which girls work in these factories, with a view to preparing a book on the subject. Her conclusions will be found of interest by all those connected with rubber footwear factory management. Two of the ideas she suggests, viz., that public demonstrations of rubber shoe making be given at fairs and at other suitable places, and that shoe dealers make an occasional window display of rubber in the various stages of its manufacture, from the crude biscuit to the finished shoe, have already been tried, in a limited way, and with excellent results, by several manufacturers.—Editor.]

THE superintendent's face was a study. He knew that I was the wife of a university professor. But he could not see why I wanted to work in his factory; nor did he see how, after my insistence, he could very well refuse. Finally, however, in an amusing, fatherly way he said to come to work if I wanted to, adding as a mischievous after-thought that for the first few days I was to be paid beginner's wages, "rather more than regular piece work rates," and that I need not follow the usual time schedule.

Regular work, however, was what I wanted, and seven o'clock the following morning found me walking upstairs to the rubber-shoe room. The foreman had come down "to do the honors," as he said. Not that he knew who I was, for he seemed to treat me as a "green hand" to be initiated. On the stairs he paused to say, "You are going to see things very strange to you, Miss, but just keep your self-confidence, and you will get along all right." His advice proved helpful. Too much consideration cannot be given the new employe, especially a girl. What seems so commonplace and usual to the regular force is full of newness and mystery to beginners. A kindness to them will win their lasting regard.

A very strange scene indeed was before me—the pounding and rolling and rattling, and the men and women, all strangers, working on queer-looking objects, with flying fingers. Could I fill one of these places and ever do work like this? I regretted that I had come.

But the forelady came up just then—she had the faculty of always being in the right place at the right time—and made me feel at ease. To make my start easier she placed me at a bench in one end of the room where she spent considerable of her time.

My first work was that of assisting a girl who had been making shoes at that bench for five years, a very sweet girl of about nineteen who had been compelled to leave school, she told me later, when her father died, because her older sisters were all married and could not help her mother. She saw nothing especially praiseworthy in this self-imposed duty; but to me she seemed a heroine, especially so since her sacrifice was long continued and unrecognized. We need a new gospel of work, which will exalt the worker's task and see heroism in the commonplace. Such heroes work in every factory, and I count it not the least valuable of my experiences that I came to know some of these.

Seated on a stool by the side of this instructor, my lessons began. And here also began a swift change in my ideas of rubber-shoe making. I never had supposed that a pair of rubbers contained so many pieces, but thought in a rather hazy way the rubber was poured into molds. I was, of course, surprised to find all the work done by hand. If consumers knew just how difficult it is to make a rubber shoe, they would not only be much interested in their rubbers but would be more willing to pay the price asked, a price which they now in a vague way believe simply goes to a "trust." It might not be practical to give demonstrations in the smaller towns, but at state fairs and in larger towns the showing how rubbers are made does seem to me to be practical. For the smaller stores I am wondering if an exhibit, a small case with glass top in which was arranged crude rubber, prepared rubber, a rubber shoe before assembling and a completed shoe, could not with good results be loaned merchant after merchant, for perhaps two weeks' time each.

My instructor was a good pedagogue, with one essential quality highly developed—patience. She showed me just how it was done; it looked easy. But it wasn't. My hands grasped things in the wrong places, my fingers were clumsy, and oh, so slow!

LUCY CASE GOWIN.

To many of the readers of THE INDIA RUBBER WORLD the process of shoemaking is doubtless a very old story, but there may be some to whom it is as new as it was to me, so I will describe briefly my first experiences as a shoemaker. My first work, that on the linings, seemed to be approved, so the forelady soon brought me several queerly shaped tools, said I was to make a real rubber shoe before long, but first to watch my teacher with care. I did so. She first slipped the tan-colored lining over a wooden last shaped like a human foot. An insole was placed under the last, and the lower edges of the lining stretched evenly along the edge of this insole and pressed down with a steel roller. A black tape about an inch wide was then placed around the edge of the shoe, half on the sole and half on the upper part. This was called the "stay." The next step was to scratch the linings in front and behind with a sharp gauge. This was followed by capping the toe with a triangular piece of stiffening; and then came the large and small heel stiffenings.

The remarkable thing, to me, about all these pieces was that they stayed just where they were put, requiring only a little rolling to keep them permanently in place. This was due to the adhesive nature of the material, most of it being a sort of rubber cloth. To complete the first division of the work another thin sole was placed on the bottom and rolled.

All this looked easy under the skilful fingers of my teachers. But my first linings became stuck together while slip-

ping them over the last; the insole was wrong side out; the stay was placed too much on the upper; the large heel stiffening was hopelessly wrinkled; I had used the wrong combination on the gauge. Yet I was trying hard, very hard, to do it right, and had used an appalling amount of time. Every one of these processes, however, must grow into the worker's being. With the experienced girl, from the time the last is taken from the rack until the final seam is finished, there is no fumbling, no repeating, no wasted materials; every motion counts.

There was nothing which bothered me more than the extreme "stickiness" of the materials with which I worked. The "uppers," for instance, if allowed to roll up would stick together and consequently have to be "scrapped," *i. e.*, sent back to the rolling room as raw material. So I was watched and directed when it came to putting on uppers. The prepared sheet of rubber had to be lifted quickly, the front-top grasped between the teeth, and one side held in each hand, all without wrinkling. Then it had to be lowered over the upright last, and had to be placed exactly in the right place on the lining. Then it must be pressed down evenly and smoothly. This sounds easy, but a curling piece of sticky rubber is worse to manage than a schoolroom full of unruly boys.

The last process is putting on the outer soles and stitching. After the uppers have been smoothed out on the last and the whole "gassed," the outer sole is put on. This requires more muscle than any other process, it being very hard to roll the stiff, thick rubber sole so it joins nicely with the upper. When this has been accomplished, the place where upper and sole meet is run over by a "stitcher."

I had now learned the elements of making rubbers. But I could as yet get up no speed, and it is speed that brings money. The girls are paid according to the number of shoes they make, *i. e.*, by piece-work. Some girls are of such slow-acting nervous organization that they never can develop speed. For instance, one hard-working girl near me after five years' experience could earn no more than $5 to $6 per week. Near her worked another girl who was able to earn $12 per week. As for myself, I feel that after a few months I could have gotten into the $10 class, but might add, too, how glad I am that years of this struggle for speed in a rubber shoe factory do not stretch ahead of me.

"MAKING-UP" ROOM IN A RUBBER SHOE FACTORY.

I noticed a great deal of nervous tension among the workers, and a tendency to "burn the candle at both ends" by drinking tea as a stimulant.

Some girls, those of so-called slow mental co-ordination, never can do well at work requiring deftness of touch. Since such girls will be a loss to the factory which employs them, some simple psychological tests which can easily be given should be a part of all employment managers' equipment. But at any rate, my instructor had made twelve rubbers before I clumsily completed one. The forelady looked it over; dear woman, she pronounced it beautifully done. I was much encouraged, and did better each time, because I wanted to please her. In this is a point I think managers are inclined to overlook or minimize.

Women do not take the coolly practical view of work that men do, but in addition to wages they are swayed a great deal by personal relations. Has not many a woman toiled long years without pay for a worthless husband "because she loved him"? You cannot with women get the best work by appealing to wage alone. An employment manager, a foreman and a forelady who beam kindness and good nature and friendly interest have their influence upon production quite the same as the Saturday check.

The end of the first day at last arrived; I had earned fifteen cents. The second day's work was better; I earned twenty-five cents. This small compensation in my case, however, gave no trouble. My main interest was not in earnings but in knowledge of factory life for girls. I had long been interested in occupations for women and after deciding to write a book on this subject to be used as a text in high schools it seemed to me the only practical thing to do was to work in a factory. This was one of the lines in which I had not yet had experience at first hand. So, no matter what my salary was, my real compensation was in experience. And in that my rewards were ample.

There is much said today of "woman's sphere," and some good, old-fashioned people say women are "unsexing" themselves by their new demands. But the so-called woman's movement is not due so much to the will of woman as to certain significant changes taking place in industry. The women of our great-grandmothers' time spun and wove and canned and sewed. They were *all factory workers*. It is true they worked in their home, but the home was a workshop, the only factory there then was. One by one these activities were transferred from home to central places of extensive production—the "factory." In the home of today how few are left of the multiform activities of our great-grandmothers!

What were the women to do? What are they to do, for this moving of industries from home to factory is still going on? Women always have worked and they always will. Every sincere woman wants to feel she is good for something, that in this great, throbbing world she fills a place. When industry leaves the home and threatens to make of her a parasite, she follows her work to its new location.

The change of working place to a position outside the home, however, has revolutionized woman's world and presented some serious social problems. Just recently there has been considerable attention focussed on the minimum wage question, especially in its relation to the morality of female employes. This is a question of importance for which space will not permit any careful consideration here. But to those who look upon factories as places where girls are menaced it should be plainly stated that reliable investigation has proved that the question is most serious not with factory employes but with domestics. While all should be interested in making factory conditions wholesome, it should not be forgotten that it is no solution whatever to recommend domestic employment.

But the change to work outside the home, in the main, is beneficial. It has meant opportunities never before possessed, opportunities for education, for freedom, for development. One of the most noticeable effects is the liberating of the latent energies of women in the world of business and industry. Some radically demand immediate equality with men in all things. Others cling to old notions and prejudices concerning "the proper sphere for women." Both must realize that the question will not be settled by endless quibbling, but by whatever economic value their efforts prove to be to society.

Here arises the practical question, What kind of work is to be undertaken by the young girl during the average seven years between leaving school and marriage, by the women to whom marriage never comes, and by the thousands of dependent widows? The majority of girls in the elementary and high schools have no idea of what they are going to do; they are ignorant of the desirable vocations and how to prepare for them. Many, consequently, do nothing. They look for a man instead, and it is because of this inefficient type that men are becoming wary. Those who do get positions, drift into them usually by chance and are poorly trained. As a result there are many misfits, many unhappy lives, and much loss to society in the form of talent and ability unused.

This state of affairs can be remedied. Since such a large number of girls must do something to support themselves, and since it is well for all girls to know how to support themselves if necessary, it is desirable for the public schools to interest themselves in vocational matters. Such courses might be given in both elementary and high schools, and should embrace vocational information and practical training.

When this is done, people will be less surprised when they hear of a person like myself working in a factory. There are now over one million five hundred thousand women and girls doing factory work in the United States. It is really no compliment to the intelligence and public interest of numerous friends of mine--some of them whose business it is as teachers to prepare young women for effective lives in this year 1913—to say: "How did you ever dare do it?" "How would you ever stand the cruel work?" "Did the foreman make you work, too, like those other poor creatures?" "Wasn't it a dreadful place?" Such remarks, and many others like them, do not harmonize well with the spirit of American democracy. What one million five hundred thousand women are daily doing should claim the intelligent interest of all people.

While I would have everybody know something of factory work, there is another point which it seems to me managers of rubber factories might carry out somewhat along this same line, and that is to have each employe appreciate how his work influences society at large. I knew a little about the rubber business before commencing my work in this factory. While finishing a shoe, my mind ran over the interesting history of rubber, how Goodyear experimented, how hard it was to get rubber made that wasn't sticky—of the workman, for instance, who thought that by dipping his overalls in a barrel of gum he would have some waterproof, never-wear-out trousers, but who had to be cut out of them at noon. And then there is the interesting story of how rubber is made, a really marvelous account of how, from the juice of a tree, our rubber shoes, coats, and tires are step by step prepared. And there is, too, the history of the factory in which one works; it is often something of which one has a right to feel as proud as of direct descent from some Saxon robber baron. If this information were given in some talks by the superintendent, or perhaps written up in a little pamphlet which was given to each employe and to every beginner when she first applied for a position, it would give dignity to the work which was done. Every worker ought to feel the great importance of rubber in the daily life of society. In this way the task before each humble worker will be lifted up as she sees herself exerting an influence which penetrates to the uttermost parts of the earth.

DRINKING ON THE FLY.

Aviation is serious business and is likely, as a rule, to require the aviator's entire attention. His two hands are needed, most of the time, at least, for the wheel, if he is to steer clear of the many dangers that beset his calling. But by the aid of a rubber tube he can console himself from time to time with hot coffee or any other drink. The liquid is placed in a metal tank with double walls which is suspended over the aviator's head, the contents of the tank being kept hot by water from the engine, which plays between the walls. A rubber tube with a suitable mouthpiece conveys it to the aeroplanist who sits below.

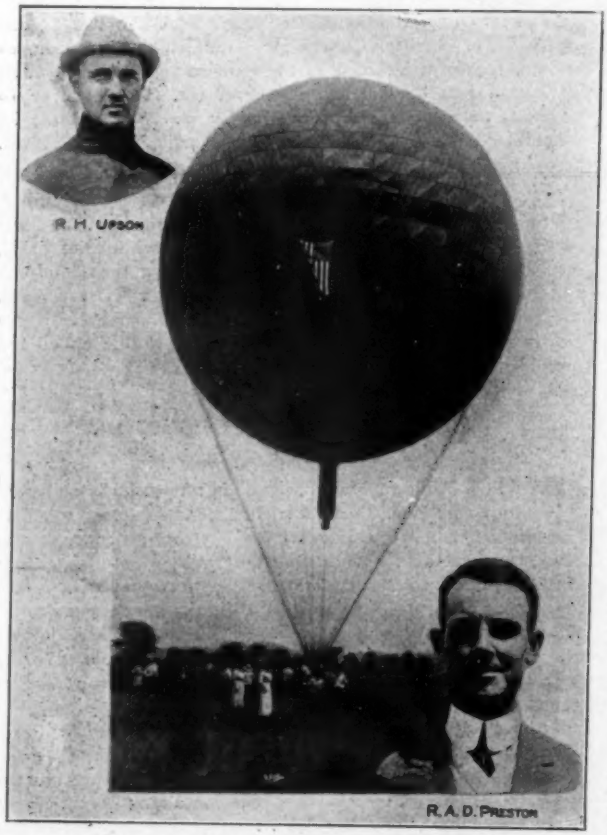
Replete with information for rubber manufacturers—Mr. Pearson's "Crude Rubber and Compounding Ingredients."

THE RUBBER TRADE IN AKRON.

By a Resident Correspondent.

AKRON is proud of Ralph Upson and R. A. D. Preston, daring young aeronauts who by winning the James Gordon Bennett trophy, emblematic of the world's championship balloon flight, brought fame to Akron and Akron products. Steps have been taken to bring about a monster public demonstration upon the return of the young men to Akron. Mr. J. E. Good, president of the Chamber of Commerce, has announced that he will call a meeting soon of the directors of the Chamber of Commerce for the purpose of discussing plans and a program.

This makes the fourth time that the championship has



THE WINNERS IN THE GREAT PARIS RACE.

been brought to the United States. September 30, 1906, Upson's cousin, Lieutenant F. P. Lahm, won the cup, after covering a distance of 402 miles. In 1909 E. W. Mix won the cup, covering 696.66 miles. Alan R. Hawley won it the third time, in 1910, covering 1,355 miles. In 1911 Germany won and in 1912 France secured the trophy.

The balloon, with the pilots, Ralph H. Upson and R. A. D. Preston, on board, landed near Flamborough Head, on the North Sea, within 200 yards of the edge of the dangerous Bompton Cliffs, which fall sheer into the sea.

When the "Goodyear" left Paris the weather was hazy and there was scarcely any wind. The balloon drifted across France slowly, in the direction of the English Channel. The coast was reached, in the neighborhood of Cherbourg, at midnight of the following day. The wind then freshened and the aeronauts sighted Southampton at 3 o'clock the next morning. A distance of 550 miles was covered in 44 hours. The balloon crossed the English Channel from a point near Cherbourg and passed over the neighborhood of Southampton.

The bringing to America of the Gordon-Bennett Trophy Cup by Pilot R. H. Upson and Aide R. A. D. Preston, is sure to bring about a new era in aeronautics in America, according to Mr. F. A. Seiberling, president of The Goodyear Tire & Rubber Co.

"This achievement," Mr. Seiberling continued, "was only accomplished through the scientific handling of the balloon by these young aeronauts. They were competing with men of experience, and under foreign conditions that from the beginning were considered a big handicap. Mr. Upson has made a study of ballooning and was well informed on the various currents of air that were to be encountered along the coast. Upson and Preston have the honor of being the only two contestants who sailed their balloon outside of France. When the balloon 'Goodyear' headed for the Ocean Upson was familiar enough with the prevailing air current to know that counter-winds would be met that were sure to blow them back over the continent. This proved to be the case. They crossed the English Channel and traveled miles over the Atlantic, however, before these winds were encountered. Their scientific study of ballooning and the gas tightness of the fabric were the main reasons for enabling them to win.

"For some time we have been interested in aerial navigation, and we have promoted the aeronautical business from a scientific standpoint. We have encouraged balloon flights, as in this manner we are enabled to ascertain from actual experience the correctness of design and strength of the fabric."

The "Goodyear" is the same balloon that won the National Championship Balloon Race at Kansas City, July 4, 1913. It was also in the National race of 1912.

Mr. Seiberling, by the way, has issued a statement, emphatically and completely denying the widely published report of a merger of the Goodyear company with another.

The following paragraph, clipped from a Cleveland paper, is typical of reports that have been going the rounds of the financial columns of the newspapers:

"Old Goodyear Rumor Revived.

"U. S. Rubber made a rather sharp advance on the New York Stock exchange yesterday and the old rumor was revived that a deal is pending between this company and the Goodyear Tire & Rubber Co., of Akron. Nothing official was given out."

"There is not now and there never has been," said Mr. Seiberling, "any negotiations of any sort, between the Goodyear and any other company. There is not the remotest likelihood that there ever will be. The Goodyear Tire & Rubber Co. is just completing the largest year's business in its history. Its sales for 1913 will pass the thirty-three million dollar mark. The prospects for 1914 indicate continued substantial growth."

* * *

Claiming that his new idea will result in revolutionizing the automobile wheel and tire practice of the world, A. F. Priest, an Akron man, has recently received a patent on his invention called the "Elliptical Wheel." The wheel is being advertised and will soon be on the market. The Elliptical Wheel Co. has already been formed, with the following officers: A. F. Priest, Akron, president and manager; W. E. Marble, Chicago, vice-president; A. L. Kanagy, Chicago, secretary and treasurer.

Each spoke of the new wheel is made of steel and is shaped like the letter "S." The outside diameter of the hub is large, and the distance between the hub and rim is comparatively short. The rim is of steel and is about 7/16 of an inch in

thickness. Each "S" spoke is placed in the wheel under 250 pounds pressure. When at rest the wheel is perfectly circular, but when under pressure it assumes a slightly elliptical form, thus expending all concussion force on a line at right angles to the line of pressure. In this action vibration, declared to be the most expensive evil in the wheel using world, is eliminated.

Speaking of his wheel and its merits, the inventor says: "The Elliptical Wheel embodies a shock absorbing principle in which the forces of concussion are utilized to create traction, reducing rebound of wheel from impact, as compared with properly inflated pneumatics, by more than 50 per cent., all conditions of speed, load and force being equal. Ordinary solid tire mileage is largely increased due to yielding wheel center.

* * *

The annual convention of the Firestone Tire & Rubber Co., held at the home office in Akron, October 7-10, was attended by over 200 branch managers, salesmen and representatives of the firm. The first day of the convention was devoted to welcoming the out-of-town guests. On the second day the branch managers held a meeting, and the next two days were spent in business discussion, in the formation of plans for the future, and in visiting the plant, which has been considerably enlarged since the last annual convention. The convention was concluded by a banquet, and all who attended returned to their work better prepared for its successful execution and with renewed enthusiasm.

This company reports that it is about to open two additional branches, one in Rochester, New York, and the other at Des Moines, Iowa. In addition to carrying a complete line of Firestone tires, rims and accessories, the Des Moines branch will be equipped with the necessary machinery for repairing wheels and applying tires—constituting a service station. It will be the distributing point for Iowa and parts of both Minnesota and Missouri. The Rochester branch will carry a stock of tires and rims for local use.

* * *

At the annual meeting of the Swinehart Tire & Rubber Co., three new members were added to the Board—Fred H. Snyder, of Massillon; Charles Currie and T. E. Barry, of Akron. They replaced Oliver Toomey of Canal Dover, and T. E. Borton of Cleveland, who declined re-election owing to other business affairs. There had been one vacancy on the board.

Earnings for the year ending August 31 were reported as approximately $120,000. Of this, $48,000 will be required for dividends. Net earnings for the year were about $200,000 on the $800,000 capital stock. None of the increase in stock—from $800,000 to $1,000,000—will be disposed of at this time, and is to be offered first to stockholders when it is finally offered.

* * *

At the annual meeting of the stockholders of the McGraw Tire & Rubber Co., held at the company's office at East Palestine, Ohio, on October 7, officers were elected for the year as follows: E. C. McGraw, president; R. W. McGraw, vice-president; John Morgan, treasurer; L. M. Kyes, secretary. These officers, together with Lenore H. McGraw, J. C. Chamberlin, George Flaccus, R. F. Taggart, James C. Chaplin, John S. Wilson and F. H. Rea, constitute the board of directors. The report of the treasurer showed the company's business for the year to have been in excess of $2,000,000.

* * *

The change of policy announced by The Portage Rubber Co., Akron, Ohio, is designed to reduce the cost of marketing its product, as well as carrying so many accounts. Portage tires are now offered to customers in Akron and vicinity through the factory representative, The Portage Rubber Sales Co., Garfield Hotel Bldg., Akron, Ohio.

* * *

A cut of 20 per cent. made by the Falls Rubber Co., Cuyahoga Falls, on certain work on a special tire which they put out, resulted in dissatisfaction among the workmen, twenty of whom are reported to have left the company's employ as a consequence. The company claimed the cut in prices was made because of simplification of the work; the workmen asserted that it was due to the company's having underbid on a job and that the prices paid by the company before the cut averaged about the same as those of other Akron factories.

* * *

By action of the Council, the City of Akron has agreed to take over Buchtel College as a municipal institution, to be known and maintained as the University of Akron. The institution will be widened in scope, tuition being free to residents of the city. This College is widely known for its splendid course in rubber chemistry, which department will be even more extensive and thorough than before.

* * *

The moving picture companies have been showing films of the local rubber industry, as well as of school fire drills, etc., and at a recent photo-play were shown the Goodyear and Firestone plants, the children of the town between 7 and 15 years of age being invited to a free performance. Needless to say, this particular performance was well attended and proved very instructive and entertaining.

THE RUBBER TRADE IN BOSTON.

By a Resident Correspondent.

BUSINESS in the rubber industry is in a most lively and prosperous condition. New England had a "spell of weather" for more than half the month. When it wasn't foggy it was rainy, and sometimes when it rained it poured. Just for a change there was one snow storm, and some few dashes of hail. Taken altogether it was just the weather to give people generally the blues, but which gladdened every retailer of rubber clothing and footwear. The clothing people were almost snowed under with orders, and the footwear jobbers and manufacturers were similarly affected.

The factories were called on for their reserve stocks, and trade received a send-off which helped amazingly. In the line of druggist's sundries, the two syndicate drug store concerns have been competing with each other, and by means of cut prices, large amounts of hot water bags, fountain syringes and similar goods, as well as hard rubber specialties have been distributed quite liberally among consumers; which must have its effect on the manufacturing end. The tire men are turning out their customary seasonable quota, with some of them in receipt of large orders for future shipment. Belting and packing specialties are moderately called for, and hose, while not going out very liberally, is being ordered for early spring shipment.

* * *

The addition to the Art Museum, given by Mrs. Evans, in memory of her husband, Robert D. Evans, known to rubber men all over the country, is now approaching completion, and will have a fitting setting by the laying out of a park approach which will allow the full beauty of the edifice to be seen and properly appreciated.

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The Lynn Rubber Co., is manufacturing a rubber heel that works on the partial vacuum principle, which is having a good sale, as are also the rubber shoe soles made by this company. The concern has adopted the word Lynco as a trade mark, which,

having been duly registered, will be applied on all goods made by the house.

* * *

Rubber cement is a mighty convenient and useful preparation in the arts and manufactures, but it is mighty dangerous at times. Twice last month it was responsible for serious accidents in the vicinity of this city. Out in Malden, at the works of the Ellis Cement Co., Herman C. Ellis was pouring cement which had just been taken from a gasolene stove. The cement became ignited, and his clothing caught fire. He rushed from the building and rolled in the sand, extinguishing the flames but not before he had been severely burned. An employe entered the building just in time to be knocked unconscious by the bursting of a small tank of gasolene, but was rescued. During the fire, a hoseman was overcome by the heat. Both these men were badly burned about the face and hands and their clothing ruined. Luckily a large tank containing 400 gallons of gasolene, at one time surrounded by flames, was prevented from exploding. The loss was about $500.

* * *

A less severe accident, in point of personal injury, but of greater money loss, was at the factory of the A. R. Hyde Shoe & Slipper Co., at Cambridge. A barrel of cement in the cellar was discovered to be leaking, Mr. Hyde and his son were gathering this overflow, when it suddenly burst into flame, and communicating with the barrel caused an explosion, in which both men were slightly burned. The building was damaged about $500 and the stock $1,500.

* * *

And speaking of rubber cement reminds us that its cost is such that substitutes are being sought for, and are already used extensively. Mention was made last month of the almost universal use of ground cork, mixed with rubber cement, as a filler between the soles of Goodyear welt shoes. Most manufacturers of this class of footwear purchase these ingredients separately, and mix them as needed, not keeping any great amount on hand, owing to the rapid evaporation of the solvent, and the consequent "caking" of the mixture. But the shoe business is in such condition today that economies in even small things are considered, and now there are mixtures or compounds which use some sort of glue, or similar substances, in place of the more expensive rubber cement.

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The Enterprise Rubber Co., of this city lives up to its name. During the reign of the "hunters' moon" one of its windows was handsomely arranged with a display of the large variety of hunting apparel and accessories, while the other window was devoted to a full assortment of Candee rubbers. Practically every shape of rubber made by the L. Candee company is shown in the display, nearly 200 individual shapes and styles being included. Manager Proctor was a busy man, and so was every member of the store force during the rainy weather last month.

* * *

The Monatiquot Rubber Works, the Naturized rubber manufacturers, of South Braintree, Massachusetts, are proceeding with the installation of an underground coal conveying system. This will be used to automatically handle and carry coal from the Rubber Works siding to the power houses, a distance of three to four hundred feet. When completed, it will form another of the many modern labor saving devices with which this company is now especially well equipped.

SMALL SUCTION PUMP TO EMPTY HYDRANTS.

There is no limit to the uses to which it is discovered rubber hose can be put. A quite recent use is in connection with a small suction pump used by the fire departments in the winter to test the hydrant standpipes and occasionally to empty them to prevent freezing. These pumps come in various sizes and are equipped with special suction hose, usually about 12 feet in length.

THE RUBBER TRADE IN RHODE ISLAND.

By a Resident Correspondent.

PRESENT conditions in the rubber industry in this vicinity are reported as being the best for some time, comparing favorably with similar periods in previous years. Not only are the automobile tire manufacturers busy, but the approach of winter weather has caused a material activity among the makers of rubber boots and shoes, and large shipments have been made during the last few weeks. Orders are being received in good volume, and the wholesalers are reported as being ready to place further large orders if they can be assured of prompt deliveries.

* * *

Early in the month the National India Rubber Co., at Bristol, changed its working schedule in order to effect economy in artificial lighting. Under the new schedule the working day will end at 5 o'clock in the afternoon instead of at 6 o'clock, making 54 hours a week, the Saturday half holiday being discontinued. Shipments from the factory of this concern, especially of shoe products, showed quite a gain during the first half of the month, the long siege of damp weather increasing the demand.

The work of enlarging the wire insulating department of the National Company's plant is in active progress. During the first week of the month two new machines, each weighing twelve tons, for manufacturing the various sizes of cable wire for electric lighting and power purposes, were received at the factory. The new building that is being erected in connection with the wire department is nearing completion and will be ready before the arrival of cold weather. The shipping room of this division is completed and is being furnished for immediate use.

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The Bourn Rubber Co. has been granted permission for the erection of a one-story brick workshop at its plant on Westfield street, this city. The plans are now being drawn for the proposed structure, which will conform to the other portions of the plant.

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A complimentary dinner was given to Col. Samuel P. Colt, president of the United States Rubber Co., by the directors of the Industrial Trust Co., on Saturday, Oct. 4, at the Squantum Club. The feature of the occasion was the presentation of a handsome silver loving cup to Col. Colt. The cup was of unique design and on it were the names of the members of the board of directors with the signature of each as written by himself.

The beautiful and unique entrance to Col. Colt's country residence at Pappoosesquaw Neck, Bristol, Rhode Island, has been completed and was unveiled in the presence of a party from all sections of the state at noon on Saturday, September 27. The design of the entrance is French in character, the main pedestals being adapted from the sentry boxes guarding the approach to the Petit Trianon at Versailles, the favorite residence of Marie Antoinette and famous for the beauty of its design. These pedestals are of Georgia marble, 10 feet in length, 4 feet wide and 9 feet high, and the east fronts are ornamented with niches and garlands of oak leaves. Massive marble balustrades curve outward to the street line from the central pedestals, ending in smaller urn-surmounted pedestals, which bear on their main faces an inscription reading: "Colt Farm. Private Property. Public Welcome." Between the pedestals and under the balustrades are curving marble seats and low copings of marble running along the street line for about 40 feet each way, the total length of the structure being 146 feet.

Each main pedestal is surmounted by a massive bronze bull, over six feet in height and weighing more than 2,000 pounds. These were made from models by Jules Isidore Bonheur and

were cast by the famous Val d'Osne Co., of Paris. These bronzes were imported direct by Col. Colt at a cost of $7,000, and the completed entrance represents an outlay of more than $30,000.

* * *

A. M. Bannister, local agent of the Goodyear Tire & Rubber Co., stole a march on his associates recently by quietly becoming married. It was more than two weeks before they became aware of the change in his affairs, but having learned thereof they proceeded to make amends by presenting him with a handsome mahogany dining table.

THE RUBBER TRADE IN CHICAGO.

By a Resident Correspondent.

THE old adage, "The darkest hour is just before the dawn," is applicable at the present moment to the condition of the Chicago rubber market in some lines—especially to dealers in footwear. The fall season is practically at a close, and the salesmen await only a change in the weather to usher in the new season. "News? No, really nothing of interest this month. Just put me down on the list with those praying for an early snowstorm," is the general answer given to all inquiries concerning the condition of trade. But according to W. E. Carver, of the United States Rubber Co., Chicago will have an early snowstorm. Mr. Carver has a reputation among his friends as a weather prophet; in fact, those who know him say they would put as much faith in a weather prophecy of Carver's as they would in the prediction of the official weather man.

To cheer those in the rubber clothing line who may be inclined to feel pessimistic, Mr. Halaburt, manager of the local agency of the Chicago Rubber Clothing Co., is decidedly optimistic. Mr. Halaburt is a veteran in the rubber industry; in fact, he has been with the present firm twenty-eight years. Hence his prophecy that a brisk season is the outlook may be regarded as substantial authority. This seemingly dormant state by no means applies to all branches of the rubber trade. For instance, the demand for rubber tires continues brisk.

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The manufacturers of rubbers are complaining about the sudden changes in the styles of shoes. One season the high heel is worn, the next the medium, and this season the clamor is for the low, flat heel. If the manufacturer could only in some way predict the duration of these styles, the difficulty of having a surplus stock of old styles might be done away with, but this seems impossible. To cite an instance: Only last week one of Chicago's largest houses closed out a lot of the best grade of rubbers (made to fit the Cuban heel) at ten and fifteen cents per pair.

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The Tango and other dances of this type have taken Chicago by storm and without a doubt will furnish the chief amusement of the winter season. This innovation is producing a large sale of the tango shoe—a type of tennis shoe.

* * *

The W. D. Allen Mfg. Co., is at present putting a new steel hose clamp on the market. It will appear under the name of the "Allen Galvanized Hose Clamp." In the words of the manager, "This is bound to be a winner." In addition to its high utility the price will be moderate, which should further commend it to the use of the consumer.

Mr. Allen, president of the company, and Mr. Pease, the treasurer, have left for a business trip in the East.

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Salesmen are beginning to start out on their regular trips, giving the country merchant opportunity to place his size-up orders. The United States Rubber Co., the Standard Rubber Co., The Quaker City, the Revere, the Rubber Manufacturing and Distributing Co., and in fact all the jobbers, are completing their salesmen's sample lines and sending them out as rapidly as possible.

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The Apsley Rubber Manufacturing and Distributing Co., reports a visit from the president of the firm, Mr. L. D. Apsley.

* * *

Chicago is infested with a multitude of raincoat emporiums, nearly all of which advertise to be an "outlet" for one or more of the big manufacturing concerns of the east. One well known name in the rubber trade appears more frequently than the others and the unsuspecting wayfarer would almost be led to believe that the particular company represented by this name had a monopoly of all the rubber business in the United States. So far as anyone can tell from reading the advertisements and window cards, nothing in any of these stores is sold at a regular price. Everything seems to be marked down to an absurdly low figure and it would appear that all these stores are constantly on the brink of bankruptcy.

* * *

Automobile row, extending up and down Michigan avenue, is flourishing and sales are reported as being large. Accessory dealers also report a good business, particularly those who handle automobile tires. The demand is about equally distributed among all grades and sizes, altho the sudden increase in the sale of small machines has about doubled the call for the smaller sized tires.

* * *

Inquiries among the proprietors of the shoe shining "parlors" bring the information that the use of rubber heels, rubber soles and inlaid rubber soles is on the increase, especially the use of rubber heels. The rubber specialty houses are doing a large business with the "repaired as you wait" shoe shops, which are not infrequently operated in conjunction with shoe shining and often by the same management. The persistent advertising of the rubber heel manufacturers is bringing its reward, in Chicago, at least.

* * *

Rubber has made another contribution to the general propaganda for hygiene and sanitation. Many drug and novelty houses are making prominent displays of a rubber "finger" toothbrush that at least has the merit of economizing space. It has long, pointed rubber "bristles," and the contrivance is slipped over the index finger while in operation, just like the stalls that doctors used to prescribe to protect a crushed or wounded finger from further injury. Each brush comes in a separate metal box, the whole fitting easily into a vest pocket or a lady's purse. Some of the stores are devoting whole windows to the display of this article.

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The process of erecting a number of enormous office buildings is now under way in Chicago, and in many of these rubber tiling is being laid in the upper hall floors as a sound deadener, taking the place of the more common tile flooring.

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A Jackson Boulevard stationer recently had a novel window display that engaged the amused attention of nearly every passerby. The window was filled with almost two hundred rubber dolls, male and female, and of every kind and type. They were arranged in artistic groups, each kind to itself. In the front was a large group of "men" dolls, wearing tiny band uniforms. At the back of the window space was a broad strip of rubber, across which was painted in red letters: "We have all kinds of rubber bands."

THE RUBBER TRADE IN SAN FRANCISCO.

By a Resident Correspondent.

THE fourteen exhibit buildings at the fair grounds of the Panama International Exposition have been commenced and will be completed on or before the 14th of July, 1914, so that there will be eight months at least for the installation of exhibits; and President Moore of the Exposition states positively that every feature of the fair will be complete in all details upon the scheduled opening day, February 20, 1915.

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The Gorham-Revere Rubber Co. made an application recently to have its name changed to the United States Rubber Co. of California, and the application has been granted. In conjunction with this action, taken by the United States Rubber Co., which owns the Gorham-Revere Rubber Co., the business of the United States Tire Co., in this territory has been merged with the United States Rubber Co. of California. The object is to avoid confusion as to names and by means of the larger and more compact organization to more efficiently handle the enormous tire and rubber business of this coast. The following officers were elected: C. C. Case, president; J. B. Brady, vice-president and general sales-manager; W. H. Gilbert, secretary and treasurer, and C. A. Gilbert, manager of the tire department. Following this merger, the branches throughout the entire coast have generally been enlarged to meet the new conditions, and two new branches have been added, one at Fresno, California, and the other at Phoenix, Arizona. This makes branches at Los Angeles, Phoenix, Fresno, San Francisco, Portland, Oregon; Seattle and Spokane, Washington, and Osaka, Japan. In most of these places both the Gorham-Revere Rubber Co. and the United States Tire Co. had branches, and these have also been merged. The merger makes this company one of the most prominent tire concerns in the west. At the headquarters in San Francisco, the general offices and wholesale department of the United States Tire Co. have been moved down to the old location of the Gorham Revere Rubber Co., on Fremont street.

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The Bowers Rubber Works report that the factory is now being run at full capacity, under three eight-hour shifts. The firm has recently placed an order for 32,000 feet of fire hose, in San Francisco. Mr. Bowers is at present on a visit to the east where he is getting in touch with eastern machinery and supplies.

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The Pacific Mill & Mine Supply Co. has taken the agency for the Rubber Filled & Covered Belt line. The agency for these belts was formerly vested in the Electric Hose & Rubber Co., of this city, which firm has discontinued its store on Howard street and as it no longer carries stock has moved into an office building, handling lines hereafter only as manufacturers' agents.

* * *

Baker & Hamilton, large wholesale hardware dealers, have added a new automobile tire department, and have been appointed western agents for the Savage tires. This concern has a thorough selling organization covering the entire coast, and W. S. Smith of the firm states that they are going into the tire business on a large scale.

* * *

B. H. Pratt, manager of the Fisk Rubber Co.'s Pacific Coast branch, has recently returned from an extensive trip of two months in the east and states that while there may be a tightness in the money market there he failed to note any indication of hard times, the manufacturers certainly not experiencing any such condition and his own company enjoying not only satisfactory but largely increased business.

R. S. Pease, Jr., treasurer of the Goodyear Rubber Co., has been chosen general manager of the business, besides holding the office of treasurer. Howard Middleton has been appointed manager of the sales department of the company.

* * *

The American Rubber Company's plant at Emeryville, California, came very near being destroyed by fire a week or so ago. A fire started in the engine room and gained considerable headway before being discovered, and by the time the alarm was turned in and the fire department responded there was a fierce blaze which was extinguished with difficulty. The total damage was estimated at $500, fully insured.

* * *

W. J. Kent, manager of the horseshoe pad department of the Revere Rubber Co., is now visiting on this coast.

* * *

The B. F. Wade Tire & Rubber Co. has been incorporated in Los Angeles, with a capital stock of $50,000 by B. F. Wade, C. E. Crozier and H. Newman.

W. F. Simpson of Los Angeles has sold his vulcanizing plant to E. W. Linn.

The California Tire & Rubber Co. has opened a branch store in Los Angeles, at 752-754 South Olive street, of which A. B. Bush has been appointed manager.

A store has been opened in Los Angeles by George E. Bennie for the distribution of Imperial and Pullman tires in the territory west of the Mississippi river.

* * *

The Santa Anna Vulcanizing Works of Santa Anna, California, has been sold to Drake & Pearce.

* * *

The Western Rubber & Supply Co. has removed from its old location at 66 South Fair Oaks street, Pasadena, California, to much larger quarters at 55 West Colorado street. This company has had the agency for Federal tires, but in the new location another brand is to be handled.

* * *

C. C. Miller has been appointed manager of the branch at Spokane, Washington, of The Goodyear Tire & Rubber Co., of Akron, Ohio—succeeding W. C. Ruckert. Mr. Miller has been for the past three years northwestern coast salesman for this company.

* * *

Ed. Fleming, formerly connected with the San Francisco branch of the United States Tire Co., has succeeded R. E. Dougherty as manager of the company's Seattle section, the latter becoming associated with the selling staff.

THE RUBBER TRADE IN TRENTON.

By a Resident Correspondent.

THE Ajax-Grieb Rubber Co. of this city has just completed the sixth year of its business in this city and will shortly submit to the board of directors of the concern a report showing the most extensive operations in any single year in the history of the company. Not only has the Ajax-Grieb company enjoyed its most prosperous year, but indications point to an even greater success for 1914, and plans are being made accordingly. During the past twelve months the company has found it necessary to increase the working force of operatives from three hundred to four hundred. The company expects to add about fifty to the force during the next year. The past month $15,000 worth of new machinery was installed. The daily output of the tire department is 650 automobile tires.

Because of the rapid growth of the business, William J. Grieb, president of the company, recently disposed of his interests in other ventures and now devotes his entire time to the management of the Trenton factory. The company has offices in New York City and other important trade centers of the country. A branch was recently established at Dallas, Texas.

Joseph P. Hickey, traveling representative for the Acme Rubber Manufacturing Co., covering Maryland, West Virginia, Virginia, the Carolinas, Tennessee and the District of Columbia, reports trade conditions unusually good in that section of the country.

* * *

Edward Cornell Murray, son of General C. Edward Murray, treasurer of the Crescent Belting & Packing Co., and the Empire Tire and Empire Rubber Co., is to wed Miss Mildred Apgar, daughter of former Prosecutor W. Holt Apgar, this month. The wedding is to be one of the fashionable events of the autumnal season in this section.

* * *

The new brick and steel three-story building being erected by the Woven Steel Hose & Rubber Co. of this city, to replace the one destroyed by fire July 4 last, will be ready for occupancy within another month. The building is being made fireproof and fitted with every modern factory convenience.

* * *

The Empire Rubber Co. is building an addition to the boiler house of the plant at a cost of $2,000.

* * *

A permit has been issued to The Empire Rubber & Tire Co., of Trenton, for the erection of an addition to its boiler house on East Clinton avenue. It is estimated that the cost of this addition will be about $1,400. At a recent test in New York City of double-jacket fire hose, preparatory to the placing of contracts, the product of this company stood a test of 1,000 pounds pressure.

* * *

A quantity of material consigned from Rotterdam to the Katzenback-Bullock Chemical Co., of Trenton, was lost in the fire which destroyed the steamer "Volturno" early in October.

* * *

In a recent report of Director of Public Safety Frank Hague to Jersey City council, a request is made for equipment which includes the following items: 10,000 feet of hose; new wheels and rubber tires for engine 12; new rubber tires for engines 14, 15 and 16, and for tenders 5 and 6.

THE ASBESTOS AND RUBBER WORKS OF AMERICA ENJOINED.

A petition was filed in the court of chancery at Trenton, New Jersey, on October 25 by John H. Scudder, president of the First National Bank of that city, asking for the appointment of a receiver for the Asbestos and Rubber Works of America with office in New York City and factory in Camden, Mr. Scudder charging that the company could not meet its obligations. The court granted an injunction restraining the company from continuing business and also compelling it to show cause why a receiver should not be named. The total assets of the company are given at $43,000 and the liabilities at $49,000.

A RUBBER TUBE AS A LIFE SAVER.

There is a young boy in Connecticut who can thank the manufacturers of rubber hose for the fact that he is alive today. A little while ago he was taking a swim in the water at New Haven, near tide gates erected at a certain point to protect the meadows from overflow, and being bent on some "stunt," as is the habit of boys, he got his foot caught in the mechanism of the gate. He couldn't extract his foot; neither could his companions or anyone else who came to his assistance, altho the police department and the fire department both came to his aid. In the meantime the tide was rising. But somebody bethought him of a rubber tube, which was passed to the boy, who put one end of it in his mouth and held it there for several hours, while the tide rose to a considerable height above his head. After a long delay the gate was broken open and the boy's foot released; but the rubber tube that supplied him with air while he was entirely immersed was the thing that saved his life.

THE DE FORD NASAL SOMNOFORM INHALER.

THE fact that rubber lends itself readily to aseptic treatment renders it particularly adaptable to use in dental as well as surgical operations; and the accompanying illustration shows the important part it plays in contributing to painless dentistry. This apparatus is designed for the inducing of analgesia or anaesthesia by the nasal administration of somnoform, and, as will be observed, rubber enters largely into its construction, being employed in the ring or soft pad which adapts the nasal cover to the face and also in the bag which contains the somnoform vapor.

THE INHALER IN OPERATION.

The vapor is conveyed from the rubber bag to the nasal cover by means of a metal tube which extends between the two, passing over the head, and in which is situated a lever-operated valve that permits the regulation of the supply of somnoform administered and the admission of air if desired. The somnoform is projected into the rubber bag by means of a metal screened capsule chamber, situated just above the union of the bag and the metal tube, and lined with surgical gauze, in which the somnoform capsule is placed, a slight tap on the cover of this cylinder breaking the capsule and causing the somnoform to fall on the gauze and thence being conveyed to the vapor bag below, the metal screens catching the particles of glass. This appliance is secured by means of a strap, which is passed firmly around the head. Not only the rubber portion of the apparatus, but the metal parts also, if wiped dry while hot, may be sterilized by immersion in boiling water, and it can very readily be taken apart for this purpose. [E. DeTrey & Sons, Philadelphia.]

RUBBER HOSE FOR CARRYING GASOLENE.

On account of the destructive effect of gasolene on rubber it has been found difficult to obtain a suitable hose for carrying this liquid from one point to another and still have the hose last long enough to pay for its installation. However, after considerable experimentation one company claims to have solved the problem by producing a hose especially adapted to conduct gasolene from the storage tank to the car by means of a pump. It is said that the hose—which is known as the "Arcadia"—has been rated as standard for this purpose by the National Board of Fire Underwriters. [New Jersey Car Spring & Rubber Co., Jersey City, New Jersey.]

News of the American Rubber Trade.

ENLARGED EQUIPMENT FOR THE ACUSHNET PROCESS CO.

THERE have been continual complaints from manufacturers purchasing Ceylons that different lots of this rubber vary widely in efficiency, and variations in the same lot are not unusual. It has long been the desire of the trade, and incidentally the producers, to standardize these products in some way, so that the manufacturer purchasing a certain brand can always feel confident of obtaining unvarying results.

The Acushnet Process Co. of New Bedford, Massachusetts, has found a means of standardizing these rubbers, and is rapidly equipping to take care of the demand. The power plant is being changed over for the installation of electric drives throughout the factory, General Electric Co. generators and motors being installed to operate on a 220 volt, 60 cycle, alternating current.

The new combination office and garage has already been completed, and a three-story factory building, 60 x 60, is in course of construction. The new factory building is laid out as a unit of a system of buildings that will ultimately take advantage of all the available land now owned by the company, thus insuring development along scientific lines and economical operation from the start.

The company is finding a very active demand from manufacturers for reclaiming their uncured friction stocks by solvent processes in place of the old acid treatment. A more useful grade of rubber is obtained, which shows practically no signs of vulcanization by the use of this method.

The well known brands, "Hidalgo" and "Fairhaven" rubbers, are meeting with a satisfactory demand from the trade. The "Acushnet" brand rubber, a treated Ceylon, is quite out of the ordinary, and the officers of the company are very sanguine of the interest manufacturers will take in this product, which is to be immediately introduced.

PURE DRINKING WATER FOR WILLIAMS WORKMEN.

Safe drinking water for the employes of The Williams Foundry & Machine Co. is insured by a new system just installed.

Water is pumped from a deep well on the property to a sterilizing plant on the top floor. The sterilizer, which is of the type used by the government in the army, in Cuba and in the Canal Zone, as well as by leading hospitals, purifies the water by the boiling process. After boiling, the water is quickly cooled and aerated so that it is delivered bright and sparkling without the flat taste common to distilled or boiled water.

The machine cools the water to a proper drinking temperature and there is an arrangement for further cooling when necessary, without direct contact with ice.

After leaving the sterilizer the water flows through galvanized pipes to sanitary drinking fountains of the bubbling type, conveniently located about the factory.

GOVERNORS ELECTED FOR THE REPUBLIC CLUB HOUSE.

It will be recalled that a picture was shown in a recent number of THE INDIA RUBBER WORLD of the new club house erected by the Republic Rubber Co., of Youngstown, Ohio, for the benefit of its employes. The club house was recently completed and ready for use and on October 16 an election was held to select five members from the Republic factory hands to act, in connection with three appointees made by the president, as a Board of Governors for the club. There was great interest manifested in this election and not a little electioneering. The five governors chosen were: Oscar Watkins, C. A. Miller, Daniel Evans and J. Deiter from the factories, and C. C. Porter of the general offices.

THE CINCINNATI RUBBER MANUFACTURING CO. INCREASES ITS PLANT.

The Cincinnati Rubber Manufacturing Co. is at the present time doubling the capacity of its boiler house. This is but the beginning in carrying out plans for the enlargement of the whole business of the company. Later there will be quite extensive additions to the machinery and general equipment of the plant, in order to take care of the increased demand for the company's products.

THE FISK COMPANY'S SUCCESSFUL YEAR.

The Fisk Rubber Co. of Chicopee Falls, Massachusetts, has had a very successful year. Its report covering the fiscal year ending October 31 has not yet been issued, but it is believed that when it is it will show a net profit for the year of about $900,000, which is sufficient to cover the 7 per cent. on the $3,000,000 preferred stock and to pay a like dividend—if the company should so elect—on the common stock. The company has been making 1,800 tires a day but with the increased equipment recently installed will be able next year to make 2,500 tires a day.

THE PORTAGE COMPANY DOUBLING ITS TIRE CAPACITY.

The Portage Rubber Co., of Akron, is preparing to double its capacity for auto tires and tubes for next season. It is now erecting an additional building 50 x 107 feet, of steel and brick construction and three stories high. The first floor will be used for storing crude rubber, the second for an additional calender and six new mills—which will be motor driven—and the third floor will be used as an additional tire building room.

A HANDSOME LITTLE DERBY CALENDAR.

The Derby Rubber Co., of Derby, Connecticut, sends its customers a small monthly calendar the size of a desk pigeon-hole which is an attractive piece of work even if in miniature. It is printed in dark green on a cream colored ground, which in turn has a green mount. The upper part of the calendar for October is occupied by a process print, very handsomely colored, giving bust and head view of a comely young woman—the whole being tied with a green silk ribbon.

RUBBER COMPANY DIVIDENDS.

The Batavia Rubber Co. on October 1 paid dividends on its preferred and common stocks of September 15 record—a regular quarterly dividend of 1½ per cent. on the preferred; and on the common a regular quarterly dividend of 1 per cent., with an extra dividend of ½ per cent.

The Lee Tire & Rubber Co. on October 10 paid a regular quarterly dividend of 1¼ per cent. on stock of record October 1.

On October 2 the board of directors of the United States Rubber Co. declared a quarterly dividend of 2 per cent. on its first preferred stock, a quarterly dividend of 1½ per cent. on its second preferred stock and a quarterly dividend of 1½ per cent. on its common stock—payable October 31 to stock of record on October 15.

A NEW RUBBER IMPORTING HOUSE.

As this number goes to press it is learned that a new rubber importing house is in process of organization. Altho the details of the project are not yet ready for publication, it is known that the company will be composed of men who have been well known in the rubber trade for some time and who have had wide experience in this line. In our next issue we shall probably be able to give the details of the organization as well as the names of the men who will compose it.

TRADE NEWS NOTES.

Plans have been prepared for an addition to the plant of the Batavia Rubber Co., of Batavia, New York, construction estimates being based on a structure 85 x 101 feet, two-stories and basement. The cost of the added factory will probably be about $35,000.

Contracts for 2,000 feet of fire hose were recently placed by the fire department of Columbia, South Carolina, the Eureka Fire Hose Co., and the Fabric Fire Hose Co., receiving orders for 1,000 feet each.

The Ten Broeck Tire Co., located at Louisville, Kentucky, and manufacturing motorcycle and automobile tires, is reported to be meeting with success. This company was organized several months ago, with a capital stock of $250,000.

In addition to the new Morgan & Wright plant recently completed at Detroit, and of which they have taken possession, the erection of another building of equal size has been decided upon, to be finished about April 1. These buildings provide floor space of 400,000 feet each.

The plant of the McGraw Tire & Rubber Co., at East Palestine, Ohio, is soon to be enlarged by the erection of an additional factory building.

The firm of Cutler, Spack & Co., wholesale rubber dealers of Chelsea, Massachusetts, has removed its office and warehouse to 193 Second street, where it is much better equipped than heretofore to advantageously take care of its business.

The India Rubber Co., has been organized at New Brunswick, New Jersey, for the manufacture of tires. The officers of the company are: J. C. Wilson, president; Charles A. Hunter, vice-president; W. L. Wild, secretary-treasurer. It is expected that production will commence by December 1.

The Endurance Tire & Rubber Co., of New Brunswick, New Jersey, has opened a sales branch on Boylston street, Boston, with John L. Hamilton as manager.

A three-story addition to the plant of the C. A. Shaler Co., of Waupun, Wisconsin, is under course of erection and when completed will be devoted to the manufacture of the garage steam vulcanizer put out by this company about a year ago. This addition will afford facilities for double the present output.

The Dayton Airless Tire Sales Co., of Hamburg, New York—of which John Schoepflin is president and Paul Schoepflin secretary—has filed dissolution papers with the Secretary of New York State. This company was incorporated early in 1912, with a capital stock of $10,000.

The National Tire & Rubber Co. is to erect a large factory at East Palestine, Ohio, to be devoted to the manufacture of automobile tires and inner tubes. This building, for which contracts have been let, is to be 44 x 252 feet, two stories high, of reinforced concrete.

The Lee Tire & Rubber Co., of Conshohocken, Pennsylvania, has established local agencies for its tires with the Lee Tire Sales Co., of Newark, New Jersey, and the Lee Tire & Rubber Co., of 1491 Bedford avenue, Brooklyn, New York.

A fire which resulted in the destruction of the entire stock of the Ellis Rubber Cement Co., Malden, Massachusetts, and injury to three persons, occurred on October 8, caused by the superheating of naphtha in a mixture of hot cement in the hands of one of the proprietors, Herman C. Ellis, who was painfully burned. Two firemen also suffered severe injuries. The walls of the building were not damaged to any great extent, but the roof was almost completely destroyed.

THE RUBBER CLUB SENDS OUT TARIFF INFORMATION.

Within two or three days after President Wilson had signed his name to the new Underwood Tariff Law, Mr. Vorhis, secretary of the Rubber Club of America, mailed a circular to the firm members of the club giving in condensed and convenient form the various provisions of that law relating to the manufacture of rubber and gutta percha. He managed to get all this information into four pages, and the circular will undoubtedly be retained by manufacturers for convenient reference. This circular was printed primarily for the firm members of the club, but anyone in the trade who will apply to Mr. Vorhis can get a copy—as long as the edition holds out.

THE GORDON RUBBER CO.

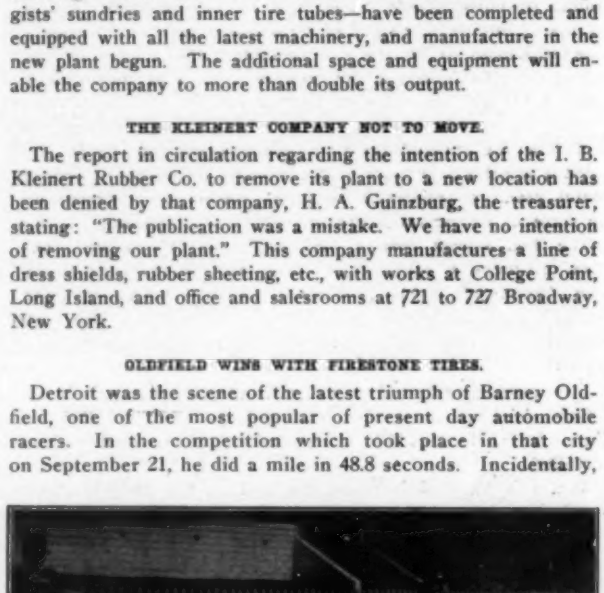
In our October issue mention was made of additions to the plant of the Gordon Rubber Co., at Beach City, Ohio, the size of these buildings being given as 40 x 50 and 40 x 200 feet respectively. This was an error, these new factory buildings having been added to the company's plant at Canton, Ohio, and being respectively 40 x 165 and 40 x 200 feet in size. These buildings—which are to be used for the manufacture of druggists' sundries and inner tire tubes—have been completed and equipped with all the latest machinery, and manufacture in the new plant begun. The additional space and equipment will enable the company to more than double its output.

THE KLEINERT COMPANY NOT TO MOVE.

The report in circulation regarding the intention of the I. B. Kleinert Rubber Co. to remove its plant to a new location has been denied by that company, H. A. Guinzburg, the treasurer, stating: "The publication was a mistake. We have no intention of removing our plant." This company manufactures a line of dress shields, rubber sheeting, etc., with works at College Point, Long Island, and office and salesrooms at 721 to 727 Broadway, New York.

OLDFIELD WINS WITH FIRESTONE TIRES.

Detroit was the scene of the latest triumph of Barney Oldfield, one of the most popular of present day automobile racers. In the competition which took place in that city on September 21, he did a mile in 48.8 seconds. Incidentally,



BARNEY OLDFIELD IN THE WINNING CAR.

it might be mentioned that in this race he used Firestone tires, the same which he had used a short time before in a race at Bakersfield, California, where on a dirt road he covered a mile in 46.4 seconds, the lowest time yet made. We reproduce herewith a recent photograph of Mr. Oldfield in his racing car—a 300 horse-power Christy front drive. He began his racing career in 1902, and in the spring of the following year, at Indianapolis, he first became famous as a driver, doing a mile over a dirt track in a few seconds less than a minute and making a world's record.

PERSONAL MENTION.

Fred. E. Dayton has been engaged by the Ajax-Grieb Rubber Co., of Trenton, New Jersey, to manage its department devoted to advertising Ajax tires and to assist in the management of the sales department, which is in charge of J. C. Matlick.

T. H. McGiehan has been elected to the vice-presidency of the Motz Tire & Rubber Co., of Akron, of which concern he has been general manager for the past year.

Herbert P. Ziegler, former manager of the Goodyear Tire & Rubber Co.'s sales department at Milwaukee, has been transferred to a similar position with the Chicago branch. W. W. Calahan has been promoted to the management of this company's Milwaukee branch from a position in the sales department which he has occupied for the past six years. T. A. Butler has become manager of the company's Philadelphia branch. He was previously connected with the Diamond Rubber Co., for several years, both in New York and Boston.

H. D. Benner has been appointed manager of the Federal Rubber Manufacturing Co.'s branch in New York, coming to this position from a similar connection with the company at Philadelphia.

E. S. Kelly, lately employed at the Chicago branch of the B. F. Goodrich Co., has accepted a position as tire expert with the Firestone Tire & Rubber Co., at Akron, Ohio.

Mr. C. A. Swinehart, the new general manager of the Vulcan Rubber Co., of Erie, Pennsylvania, formerly acted as manager of sales for the Swinehart Tire & Rubber Co. of Akron.

The Meeley Rubber Co., Inc., of Philadelphia, has placed William Fait, Jr., in charge of its selling branch at Washington, D. C., and Edwin T. Howard in a similar position in its solid tire department.

A department to be devoted to its new "E. C. McGraw" Truck Tire has been established by The McGraw Tire & Rubber Co. of East Palestine, Ohio. This department will be managed by Mr. A. Hanschild, former manager of the Polack Tire & Rubber Co., who brings to the office a fund of practical knowledge gained through his connection with the Polack company, both in Europe and in this country.

Mr. William A. DeLong returned to New York on October 13 after a five weeks' stay in London, where he was engaged in some business matters concerning the New York Commercial Co., for which he has acted as trustee during the past eight months. Before his retirement from active business about ten years ago, Mr. DeLong was one of the best known men in the rubber trade.

Mr. George Mills, the popular salesman at Bailey's Rubber Store, 22 Boylston street, was pleasantly surprised on October 17 when he was presented by Mr. C. J. Bailey with a gold watch and scarf pin in recognition of twenty-one years of faithful service.

James Lawton, son of L. C. Lawton, president of the Chicago Rubber Co., sailed about the middle of October for Dutch Guiana, where he will be connected with The Dutch Guiana Culture Co. This company has planted, altogether, 70,000 rubber trees, and 1,000 of these are old enough to be tapped next year. Mr. Lawton has been on the plantation before and is very enthusiastic over the company's prospects.

W. H. Hildreth, a director of A. H. Alden & Co., Ltd., of London, and Mr. Hambling, general manager of the London & Southwestern Bank, of London, arrived in New York City on the *Lusitania* on October 31. They will be in New York for some time on business connected with the liquidation of the New York Commercial Co.

MR. C. O. BRANDES.

Mr. C. O. Brandes, whose portrait appears below, has been engaged by the Firestone Tire & Rubber Co. of Akron, Ohio, as manager of its export sales and shipping departments—a position

MR. C. O. BRANDES.

created by the rapid growth of this branch of the company's business. Mr. Brandes possesses a wide knowledge of both foreign and domestic trade conditions, which especially fits him for this important and difficult position, having had years of experience in European markets previous to his connection with the rubber trade of this country. He was born at Hamburg, Germany, but has been in America for the past eight years.

THE TWO NEW DIRECTORS OF THE UNITED STATES RUBBER CO.

At a meeting of the Board of Directors of the United States Rubber Co., held October 3, 1913, Nicholas F. Brady and James C. Brady, sons of Anthony N. Brady, were elected directors of the company, to fill the vacancies caused by the death of Frederick M. Shepard and Anthony N. Brady.

Reports made at the meeting show the business of the company for eight months of 1913 to be somewhat in excess of that for the corresponding months of 1912, and notwithstanding that there is a recent falling off in volume of sales, the indications are that for the entire year the sales will reach, if not exceed, the volume of business done in 1912. The above statement applies to the entire business of the company. The profits of the year so far compare favorably with those of 1912.

MR. FRANK EVANS.

Mr. Frank Evans, acting director of the Department of Agriculture of the Central Province, Southern Nigeria, recently visited New York on his way south. He expects to make a brief stop in Florida and then go on to Panama and Cuba.

AN AUSTRALIAN RUBBER MAN VISITS AMERICA.

Mr. E. E. Glass, of the rubber firm of Barnet Glass & Co., of Melbourne, Australia, is visiting America for the first time. He is very much interested in certain lines of rubber manufacture and has devoted considerable time to looking over some of the big American factories. He sails for home from Vancouver late in November.

The accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

NEW CORPORATIONS.

Amalgamated Rubber Co., Inc., October 17, 1913; under the laws of New York; authorized capital, $300,000. Incorporators: Robert Naumann, 70 Randall avenue, Corona, New York; Charles B. Alling, Montclair, New Jersey, and William Naumann, 70 Randall avenue, Corona, New York. Location of principal office, New York. To manufacture and deal in rubber goods.

American-Chinese Republic Rubber Co., September 16, 1913; under the laws of Illinois; authorized capital, $25,000. Incorporators: William M. Staley, H. W. Griswold and Charles G. Davies. Location of principal office, Chicago, Illinois. To manufacture and deal in rubber goods.

American-Malaya Trading Co., October 8, 1913; under the laws of Delaware; authorized capital, $100,000. Incorporators: William H. Jacobs, 68 Howard street; Kate Buerck, 263 Chadwick avenue, and George C. Ralph, 24 Nelson Place—all of Newark, New Jersey. To import and export, buy and sell and trade in cocoa beans, vanilla beans, cocoanuts, rubber, and other similar products.

Columb Tyres Import Co., Inc., September 8, 1913; under the laws of New York; authorized capital, $50,000. Incorporators: H. Ray Paige, A. C. Kahler—both of 1789 Broadway, New York, and Frank H. Twyeffort, 286 Saint John's Place, Brooklyn, New York. Location of principal office, 1891 Broadway, New York. To sell "Prowodnik" automobile tires, tubes and other rubber products of parent company which is The Russian French India Rubber, Guttapercha & Telegraph Works, of Riga, Russia.

Deatherage Airless Tire Co., September 4, 1913; under the laws of Kentucky; authorized capital, $14,000. Incorporators: J. S. Collins, S. A. Deatherage and George B. Phelps—all of Richmond, Kentucky. To acquire, manufacture, buy, sell and deal in patented airless tires for automobiles, etc.

Flexible Rim Tire Co., Inc., October 20, 1913; under the laws of New York; authorized capital, $25,000. Incorporators: C. Elmer Clapp, 181 West 75th street, New York; Ernest G. Ofeldt, Nyack, New York, and Alpheus H. Faveur, 45 Cedar street, New York. Location of principal office, New York. To manufacture patented tires for motor vehicles, etc.

Marathon Tire Sales Co., Inc., October 22, 1913; under the laws of New York; authorized capital, $1,000. Incorporators: Owen Moynihan Bergenfield, New Jersey; Joseph Brewster, 225 East Seventeenth street, New York, and Richard M. Farries, Scarsdale, New York. Location of principal office, New York. To carry on general tire business.

Mecca Tire Co., September 25, 1913; under the laws of Delaware; authorized capital, $100,000. Incorporators: William R. L. Fullerton, 900 South 47th street; Charles H. Bucklet, 34 South 40th street, and L. T. Layton, 742 Real Estate Trust building—all of Philadelphia, Pennsylvania. To manufacture and deal in automobile tires, tubes, etc.

Miller's Inner Tire Core Co., October 9, 1913; under the laws of Delaware; authorized capital, $250,000. Incorporators: J. M. Miller, H. C. C. Stiles, and George B. Rose—all of Washington, D. C. To acquire patents covering the Miller Inner Tire Core.

Ohlsson Spring Tire Co., Inc., August 16, 1913; under the laws of New York; authorized capital, $30,000. Incorporators. Charles J. Ohlsson, 170 Park Place, Joseph Maddocks, 156 Saint Marks Place, and Peter J. Butterly, 46 Berkeley Place—all of Brooklyn, New York. Location of principal office, Brooklyn, New York. To manufacture patent spring tire.

Quality Rubber & Auto-Supply Co., September 27, 1913, under the laws of Delaware; authorized capital $25,000. Incorporators: F. R. Hansell, Philadelphia, Pennsylvania; George H. B. Martin, and S. C. Seymour—both of Camden, New Jersey. To deal in automobile tires, etc.

Safety Rubber Tire Co., Inc., October 2, 1913; under the laws of New York; authorized capital, $500. Incorporators: Frank Kronenberg, Minnie E. Kronenberg, and William Kronenberg—all of 497 Dean street, Brooklyn, New York. Location of principal office, Brooklyn, New York. To manufacture and deal in all kinds of rubber tires.

Self-Compressed Indestructible Automobile Tire Co., September 15, 1913; under the laws of South Dakota; authorized capital, $100,000. Incorporators: J. W. Kennedy, W. H. Farnsworth and Guy Barnes—all of Sioux City, Iowa. Location of principal office, Sioux City, Iowa. To manufacture and market an automobile tire which is designed to replace pneumatic rubber tires.

The Sherwood Crippen Rubber Co., September 30, 1913; under the laws of Ohio; authorized capital, $20,000. Incorporators: John C. Sherwood, Robert C. Crippen and Charles L. Crippen. Company's initial incorporation was September 28, 1913, as The J. C. Sherwood Rubber Co.

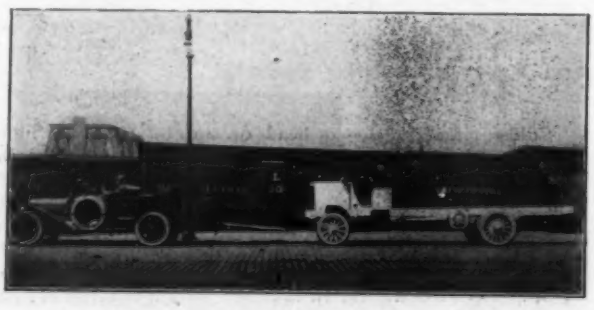
Spring Cushion Tire Co., September 30, 1913; under the laws of Delaware; authorized capital, $300,000. Incorporators: W. I. N. Lofland, John S. Collins, Jr., and W. F. P. Lofland—all of Dover, Delaware. To manufacture spring cushion tires for automobiles, motor trucks, etc.

United States Pneumatic Rim & Tire Co., September 13, 1913; under the laws of Delaware; authorized capital, $1,000,000. Incorporators: Charles B. Bishop, Clarence J. Jacobs, and Harry W. Davis—all of Wilmington, Delaware. To purchase Chipley patents from the Pneumatic Rim & Tire Co.

Voorhees Rubber Manufacturing Co. of Pittsburgh, September 18, 1913; under the laws of Pennsylvania; authorized capital, $10,000. Incorporators: Frank W. Succop, Cheswick; James Milholland, Pittsburgh, and A. H. McNamee, Carnegie—all of Pennsylvania. Location of principal office, Pittsburgh, Pennsylvania. To deal in rubber, leather and canvas goods, etc.

THE TUBE THAT TOWED THE 4-TON TRUCK.

Here is a photograph of Mr. J. B. Cothran, New York City district manager of The Fisk Rubber Co., of New York, showing him in his Lozier car towing a Packard truck



TESTING A FISK TUBE.

weighing 8,600 pounds, the tow line being a 5 x 37 Fisk Pure Gum tube. This is a convincing demonstration of the strength and durability of the tube.

TRADE NEWS NOTES.

The Bristol Co., Waterbury, Connecticut, has taken over the business of the Goodwin Hollow Set Screw Co., and has made arrangements for the exclusive manufacture of the Goodwin Patent Hollow Safety Set Screws with the dove-tailed slots. Better facilities for manufacturing these set screws will be provided and shipments are already being made from the main factory of the Bristol company.

The Anglo American Rubber Corporation has changed its location from 367 Hamilton avenue, Brooklyn, to Bush Terminal building No. 19 in the same city.

The Panther Rubber Manufacturing Co., of Stoughton, Massachusetts, has purchased a factory in Sherbrook, Quebec, which it is equipping with machinery for the manufacture of rubber heels, soles and soling.

The Voorhees Rubber Manufacturing Co., of Pittsburgh, Pennsylvania, has been incorporated to distribute in that city the product of the Voorhees Rubber Manufacturing Co., of Jersey City.

The Aetna Rubber Co., of Cleveland, Ohio, large manufacturers of rubber gloves of all descriptions and also of molded goods, have just erected a new factory 50 x 120 feet, two stories high.

The Pan American States Association held a meeting of special interest on October 3 in its capacious quarters corner Thirty-second street and Sixth avenue, New York. Plans for the new home of the association were on exhibition.

An involuntary petition in bankruptcy has been filed against the Standard Vulcanizing & Tire Co., of Nashville, Tennessee by its creditors, who claim insolvency and admission of inability to pay debts.

A drawback allowance was granted on October 6 by the Treasury Department on the exportation of waterproof cloaks and coats manufactured by the Cravenette Co., of Hoboken, New Jersey, from imported woolen cloaks and coats for the account of E. Connor & Co., New York City.

THEY SPECIALIZE AT THE STODDARD WORKS.

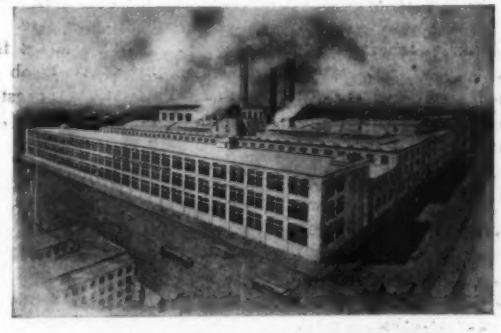
The C. H. Stoddard Rubber Tire Works, Worcester, Massachusetts, believe in specializing. They make tires only for the Ford cars and in but two sizes, viz.: 30 x 3 and 30 x 3½. They contend that by limiting themselves to these two sizes of one tire they can afford to make them 25 per cent. over-size, with extra fabric, and still sell them at a low price, not being put to the great expense of the manufacturers who make a great many different sizes—in some cases 44—and a number of different types of each size. The Stoddard company occupies a four-story factory building and uses the one-cure wrapped tread apparatus.

THE COLONEL WAS RIGHT.

Colonel Samuel Reber, head of the Government Signal Corps at Washington and in charge of the Aeronautical Department, and one of the best posted men on aeronautics in the United States, was very much interested in the recent balloon race from Paris in which the two Americans—Messrs. Upson and Preston—took part in the balloon "Goodyear." When all trace of this balloon was lost and some people were afraid it had blown out to sea the Colonel, who is familiar with the air currents in that part of the world, prophesied that they would soon meet return currents that would carry them back to the land and that they would drop somewhere in Northern England. He also prophesied that they would win the race. Both prophecies came true.

THE DAVOL PLANT OF TODAY.

WITH the completion of the addition to their already extensive plant at Providence, Rhode Island, and the installing of new calenders, mixers and special machines, together with a complete power plant, the Davol Rubber Co. felicitate themselves upon being the largest and best equipped company in their line in the world. This line, be it noted, is not confined to druggists' sundries, but is described by the manufacturers as "fine rubber goods." This broadened field embraces the myriad articles shown



DAVOL RUBBER CO. PLANT.

in the surgeons' and dental depots and the stationery trade, and an almost endless list of special articles used in every art, craft and profession.

With so diversified a line, many special machines, the production of the company's own experts, have been found necessary; and a notable adjunct to the factory is the group of machine shops where special tools, machines, molds and dies are designed and made with an attention to detail and a finish that leaves nothing to be desired.

In its early beginnings in 1874, many articles in the Davol line were imported into this country, some extensively. Today the Davol company have a large export business in these lines in Europe, and indeed send their goods everywhere in the Orient and Occident.

One of the pioneers in the business, the company was established in 1874 and incorporated in 1882 as the Davol Manufacturing Co. Three years later, to more fully designate the character of its goods, the name was changed to The Davol Rubber Co.

The present plant is not only efficient mechanically, but its organization of workers, some nine hundred, in all, is a skilled force that works together with the perfection of a machine.

As showing their knowledge of the difficult markets of the world, the company, for instance, have specialized in rubber goods suited to the Tropics, and their business in South America, Africa, the Middle and Far East, and in Oceanica, is very large.

To quote from a remark of one of their officers, "Success has not been an accident but the culmination of years of constant effort of many skilled minds concentrated on one idea, to produce the best in good, honest goods."

In 1914, the Davol company will round out forty years of continuous and conspicuous business success. It is certainly to be congratulated on this notable record.

An American consular officer in India reports that a resident of that country would like to secure catalogs from American manufacturers of spraying machines for use on coffee trees, to distribute among members of an association to which he belongs. He desires prices along with the catalogs, and any other particulars available, such as the length of time required to obtain such goods from the United States, etc. Report No. 11,862.

TRADE NEWS NOTES.

The Liberty Rubber Co., of Orange, New Jersey, has recently installed new equipment, the business having been purchased by practical rubber manufacturers. Its products include, in addition to all the small rubber parts used in connection with an automobile, "Men-Do" for tires and tubes, "Treadmend," blow-out patches, and everything pertaining to the repair of tires.

The plant of the Western American Rubber Co., located on North avenue, Los Angeles, California, was recently damaged by fire to the extent of $25,000.

At the annual meeting of stockholders of the General Bakelite Co., held at the company's office at 100 William street, New York, on October 1, the following officers were elected for the ensuing year: Dr. L. H. Baekeland, president; Jacob Hasslacher, first vice-president and treasurer; Dr. Hans Foersterling, second vice-president and superintendent, and Paul Mausloff, secretary.

The firm of Ernest Jacoby & Co., Inc., of 79 Milk street, Boston, with factories at South Braintree, manufacturing high grade rubber substitutes, is now being represented and its goods sold in Akron, Ohio, and the surrounding territory by Gove & French, Inc. This company has lately put on the market a belt dressing known as "Stixtite," said to possess unusual preservative and gripping qualities.

The Cornwall Rubber Co., a new reclaiming concern, under the management of W. C. Coleman, of Boston, has acquired the plant formerly occupied by The Estes Manufacturing Co. at Cornwall, Connecticut.

A new rubber manufacturing concern has recently been organized in Massachusetts under the name of Philips, Anderson & Rich, to make a line of molded specialties. South Boston is named as the probable location of its factory.

The top floor of the building at 531 to 537 Broadway, New York, has been leased by the Cross & Brown Co., to the Goodyear Tire & Rubber Co.

The Chester Rubber Tire & Tube Co., of Chester, Ohio, has contracted for machinery to be installed in its plant at Ninth street and Carolina avenue, H. Neely of Akron, being the engineer in charge of the installation. It is said that the new plant will be running by December 15, that it will employ about 100 workmen at the start, and that, while the operation of the factory will be superintended by an out-of-town man, local stockholders will be in charge.

Work has been started on the new building at Atlanta, Georgia, of the Fisk Rubber Co., of Chicopee Falls, Massachusetts. This building will be three stories high and will cost approximately $60,000.

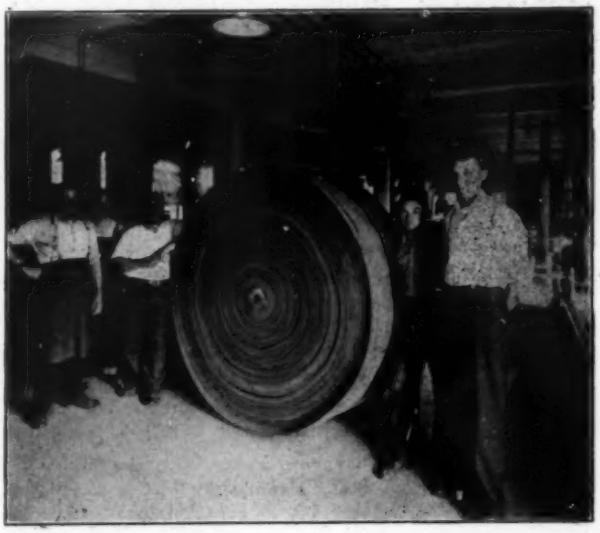
The Nichols Tire & Rubber Co., notice of whose incorporation appeared in the October number, is to establish headquarters at 222 West 52nd street, New York City, from which it will distribute in the Eastern territory—which is considered as including Connecticut, New York City, Long Island and part of New Jersey—the product of the Knight Tire & Rubber Co., of Akron, Ohio. The president of this new concern is James C. Nichols, who is also president of the General Automobile Supply Co., and the secretary is W. B. Hughes.

On Monday, November 3, a meeting of the creditors of the New York Commercial Co. will consider the payment of an initial dividend.

At a creditors' meeting in Boson, on October 18, Geo. A. Alden & Co. offered a payment of 10 per cent. in composition. The offer was accepted by the creditors.

A CONVEYOR BELT 700 FEET LONG.

Here is a reproduction of a photograph taken of a conveyor belt recently made by the Goodyear Tire & Rubber Co. of Akron, the belt being 700 feet long, 2 feet wide and weighing 5,140 pounds. The belt is to be used for conveying hot



A 5,140-POUND GOODYEAR BELT.

cement. It will be noticed by the picture that, while the workmen standing near the rolled up belt are pretty stalwart fellows of good altitude, the roll of belting towers considerably above them.

"THE DOMINION."

"The Dominion" is a semi-monthly publication of 16 pages and cover, tastefully printed, published by the Canadian Consolidated Rubber Co., Ltd., Montreal, for distribution among the companies and branches connected with that corporation. The October 1 number contains much interesting matter, among which might be particularly mentioned a recent interview given by the company's manager, Mr. A. D. Thornton, to the "Montreal Star," regarding the expectation on the part of the retail dealer of immediate lower prices for manufactured goods every time the price of crude rubber declines. Mr. Thornton points to the fact that about six months elapse between the time rubber is bought and the distribution of the goods in which it is used; that the goods now being offered the retailer were made of rubber bought at a considerably higher price than now prevails in the crude rubber market. He continues: "Then again all other commodities are higher than before. Cotton is very high; chemicals are all heavily in demand. Consequently prices are continually on the up-grade. Labor—well, you all know what labor is; there is no end to the increase in wages demanded by labor. We are large users of gasolene. A short time ago it was 16 cents per gallon; today we are paying 24½ cents. So you see, taking in the above considerations, it would not appear wise to even talk about lower prices at present."

Incidentally, "The Dominion" reprints an editorial which appeared in the August issue of THE INDIA RUBBER WORLD entitled "Guaranteeing the Unguaranteeable," which called attention to the great burden imposed upon the manufacturer of tires in demanding from him a guarantee when he could by no possibility tell to what sort of abuse the tire was going to be subjected.

SEND for Index (free) to Mr. Pearson's "Crude Rubber and Compounding Ingredients."

THE FOXBORO TIRE PLANT MAY BE SOLD.

There is more than a possibility that the receivers of the Walpole Tire & Rubber Co. will dispose of the company's Foxboro works, which are equipped for the manufacture of tires and inner tubes. There are two buildings—one 210 x 60 feet, three stories and basement, and one 150 x 65 feet, one story and a half. The equipment is sufficient to produce 500 tires per day. Here is an opportunity worthy of consideration by any one desiring to start tire manufacture without any delay.

RUBBER COMPANY HAS A DISASTROUS FIRE.

The Milwaukee, Wisconsin, branch of The Goodyear Rubber Co. had a most disastrous fire on October 26. Owing to an explosion which sent the walls crashing down upon fifty firemen, a number of them were caught beyond the possibility of escape. The bodies of seven were taken from the ruins after the fire was extinguished and twenty-four others were injured. The money damage to the building and stock is placed at over $500,000.

THE FATAL RESULT OF A SYNTHETIC EXPERIMENT.

It would undoubtedly be a revelation even to those in the trade most familiar with the subject to know how many people are busily engaged in the quest of synthetic rubber. It is safe to say that in the United States, England and on the Continent, there are thousands of experimenters devoting themselves to this most attractive problem. The work in one synthetic laboratory in New Jersey was recently attended by most disastrous results. Dr. Louis Gottschalk, a German chemist, and his wife—herself the holder of several scientific degrees—erected, a few years ago, a laboratory in the rear of their residence in Sewaren, New Jersey, where they were devoting their energies to chemical experiments for the purpose of discovering the much sought-for synthetic rubber. They had progressed so far in their work that a company had been formed—known as The Alembic Process Co.—to market their product, but they were still busy in the attempt to perfect their process. They had five steel cylinders, about 4 feet long and 6 inches in diameter, filled with certain chemical ingredients, the combining of which they were watching with intense interest. So absorbed were they in this work that they continued their experiments late into the night and began early in the morning. On the morning on which the accident occurred they were both busy in their laboratory when they were called to the house for breakfast. The doctor responded, but his wife lingered a moment to make further observations. The doctor had scarcely reached the house before there was a tremendous explosion, which wrecked the laboratory and resulted in the instantaneous death of Mrs. Gottschalk. One of the five cylinders had exploded, the other four, however, remaining unharmed. The doctor has not revealed the nature of the compound contained in the cylinder.

A NEW TIRE COMPANY IN AKRON.

The Mohawk Rubber Co. has been organized at Akron, Ohio, and has bought The Stein Double Cushion Tire Co. plant and machinery. The new company is organized with a capitalization of $350,000, $250,000 common stock, and $100,000 7 per cent. cumulative preferred stock. The plant is located in East Akron, and has a present capacity of between 100 and 150 tires per day.

The president is R. M. Pillmore; the vice-president is C. D. Paxson, of Cleveland; the superintendent of the plant is S. S. Miller, formerly with The Kelly Springfield Tire Co.; the treasurer is C. W. McLaughlin, formerly assistant cashier of The Diamond Rubber Co. M. E. Mason, secretary and sales manager, was connected with the sales department of Morgan & Wright for many years. The directors are: R. M. Pillmore, Akron; C. D. Paxson, Cleveland; J. K. Williams, F. J. Mishler, S. S. Miller, C. W. McLaughlin, and M. E. Mason—all of Akron.

THE B. F. GOODRICH CO. PROTECTS ITS DEALERS.

On October 28, last, The B. F. Goodrich Co., of Akron, sent out the following circular to dealers handling its tires: "In order that we may reassure those dealers, who are handling our product, we desire to advise that on all automobile casings and tubes of our brands purchased by you on and after the first day of November, 1913, we will protect you against shrinkage in value caused by a reduction in price made by ourselves, provided that, at the time any reduction is made, you still have the goods in your hands. Should a reduction occur, a Credit Memorandum for the amount of the difference in price caused thereby will be issued to your account."

FIRE HOSE IN KANSAS CITY.

A recent report on the Kansas City fire department contains the following paragraph regarding the amount and character of hose used in that department: "All of the 2½-inch hose is cotton, rubber-lined, of well-known brands, bought under the usual guarantees and tested yearly at about 200 pounds pressure. New hose is distributed among the companies near the center of the city and their hose given to the outlying companies where work is lighter. The majority of the wagons carry only 750 feet of hose, but five carry 900 feet and one carries 1,000 feet. An extra shift is kept in reserve at each station. Hose is changed on wagons only when wet or dirty."

A FIRE ENGINE PUT TO ODD SERVICE.

Ordinarily the use of a fire engine is to preserve property, but an instance occurred recently in Detroit where it was used to destroy a piece of property, the destruction of which was quite desirable. There was an old brick house, 75 years old, on one of the streets, in such a dilapidated condition that it was not only dangerous to passers by but really hazardous to tear down in the usual way. The fire department was appealed to and a fire engine was assigned to the duty of demolishing the building, which it did in less than eight minutes, with a powerful, well-directed condensed stream.

SCHOFIELD'S LIQUID TIRE TONIC.

While there are many "puncture proof" tires on the market, and many "fillers" which are supposed to make punctures impossible, accidents of this nature continue to occur, and the tire user is still on the watch for something that will reduce to the minimum inconveniences arising therefrom. That an article which will accomplish this end has been produced in Schofield's Liquid Tire Tonic, is the claim of its manufacturers, The Liquid Tire Tonic Co., of Kansas City, Missouri. The company distinguishes very sharply between "filler" and "tonic." The action of this latter preparation—a small quantity of which is injected into the inner tube, occupying only about 6 per cent. of the space in the inflated tube, where it remains, unimpaired by either heat or cold—is described, in the event of a puncture, as follows: "The fibrous part of the compound, which forms a thick layer along the inside wall of the tube, is forced into the hole by the pressure of air. At the same time the fluid with which the fibre is mixed is squeezed from it in much the same manner as water is expelled from a sponge when pressed by the fingers. The plug of fibre expands the moment it enters the hole and instantly an elastic cork is formed, which absolutely prevents the slightest outlet of air."

Among the claims that the company makes for it are: That one treatment will last the entire life of a tube, prolonging it at least 40 per cent.; that it will not injure the tire or detract from its resiliency; and that it not only mends the leak in the tube, instantly and permanently, but also heals the wound in the casing.

Replete with information for rubber manufacturers—Mr. Pearson's "Crude and Compounding Ingredients."

Interesting Letters From Our Readers.

THE ADVANTAGES OF BALATA BELTING.

EDITOR, THE INDIA RUBBER WORLD:

Dear Sir: In the issue of October 1, this year, your magazine had an article with the heading as above, taken from "The Goodyear—A Family Newspaper," published by the Goodyear Tire & Rubber Co. of Akron, Ohio, in which Mr. R. D. Burr, manager of the mechanical goods department of the company's Chicago branch, explains his experience in the advantages of balata belting.

Having had twenty years' experience as manufacturer of leather and balata belting, I take the liberty to further point out the advantages of balata belt over leather and rubber belting.

Mr. Burr points out five conditions to be considered in the purchase of belting. He is right in saying that balata belt is little known and used in this country, but does not give his reason for saying so. Its little use in this country is due to the high tariff on it of 35 per cent.* ad valorem and about 10 per cent. for transportation. It has only been made in the United States during the last few years. Most users of belting have never seen nor heard of balata belting and of its many advantages over other belting. Owing to the high tensile strength of balata belt, which is practically double that of leather and rubber belting, and its high co-efficient of friction between it and the pulley face, a thinner balata belt can be used to transmit the same horse power that thicker belts transmit, thus reducing the cost of belting and giving less shock to pulleys and bearings in that we have a less thickness of belt to bend when it passes over the pulley.

I do not agree with Mr. Burr that balata belt is especially adopted to certain few conditions of power transmissions. Experience all over Europe has proved that balata can be used advantageously to transmit power under practically all conditions. Speaking about heat, it can be used wherever man can work.

Let me cite a specific case of the less cost of balata belt. A four-ply balata belt and a single leather belt cost the same per foot of length, but a four-ply balata belt has twice the strength that a single leather belt or a four-ply rubber belt has and will consequently transmit twice the power that a single leather belt will, so the balata belt will cost just half as much. I know this to be true of the comparative tensile strengths of the three belts, as I have made comparative tests of the same.

The balata belt increases in strength with age. Rubber belting decreases with age and oxidizes. Most all dealers as well as consumers of rubber belting keep their belts in storage.

For conveying or elevating, balata belting is especially adapted. It will stand all kinds of weather, is tough, does not rot, shrink, stretch, nor become affected by any atmospheric conditions. It can be used thinner, owing to its great strength, and in places where no roof is needed. It can carry rocks, sand, coal, ore or any other material, wet or dry.

Mr. Burr speaks of a machine running at five to seven thousand feet per minute. He must mean that the belt runs at that speed.

Mr. Burr recommends the balata belt for high speeds, on account of the greater strength, and on small pulleys. Now balata belting can be used on slow speeds as well, because a slow-speed belt has to have a greater initial tension and consequently a greater pull than high-speed belts.

What has happened in Europe and other countries I am sure will happen in the United States, and that is the balata belt will increase in demand and will replace rubber and leather belts, provided the balata belt manufacturers in the United States keep up the quality.

ANTHON BERG.

Akron, Ohio, October 13, 1913.

*Reduced to 15 per cent. in the new Underwood-Simmons Bill.

Editor THE INDIA RUBBER WORLD:

Dear Sir:—My attention has lately been called to some remarks in a recent issue of THE INDIA RUBBER WORLD with reference to the School of Rubber at the Northern Polytechnic Institute (London). Those remarks do not, I am afraid, do justice to either the school or its tutor, and as I recently took the day course of study there (whilst on vacation from the Orient) I know perfectly well just how useful such a course can be under the able tuition of Mr. Kaye; especially to those such as myself, who desire a further insight into the higher chemistry of rubber.

Students at this school come from various parts of the world, and are drawn from all branches of the industry, including chemists, superintendents of departments, factory men, salesmen (who desire to know something about the goods they carry), plantation assistants, etc.; and each one receives individual attention and may take a course suitable to his own requirements. The two laboratories are well equipped with an up-to-date reference library, testing machines, rolls, compounds, latices, etc., and the institute contains a restaurant, clubs, and all the usual accessories of a polytechnic.

Of course, as you say, the correct place to learn the industry is in the factory, but then there are many things one cannot learn, or sometimes one is prevented from learning, in a factory. I enclose syllabus which gives further information. Hoping I have not trespassed too much on the space of your valuable journal, I remain,

Yours faithfully,
(Signed) STAFFORD H. PRATT,
Chemist to the Star Rubber Co.

Akron, Ohio, September 24, 1913.

AS TO OPPORTUNITIES IN CENTRAL AMERICA.

In a recent consular report Commercial Agent Garrard Harris is quoted as stating, in reply to an oft repeated query as to the opportunities in Central America and Panama, especially in a business way, for a young man of practically no capital, that many young men of the United States have been misled by the optimistic views expressed in the discussion in the daily papers as to the future of these republics. He goes on to say that "there are no opportunities in any of the Central American Republics for a man, either young or old, who lacks capital. To go there without ample resources usually means an ultimate call on the folks back home for help to get away, unless, of course, the person intends to take up a tract of land and farm it. In this event he had better bring his labor with him, for lack of labor is what prevents the more rapid development of the entire region from Belize to Puerto Bello. While, as a rule, land may be had cheaply in Central America, except on the Canal Zone, and settlers' effects may be brought in free of duty, the problem of clearing and putting the land in cultivation is a serious one, and calls for considerable money. Moreover, there must be a reserve to support the developer until his land produces something besides a weekly pay roll."

OBITUARY RECORD.

JAMES L. DAVIS.

JAMES L. DAVIS, secretary and manager of The Jenkins Rubber Co., of Elizabeth, New Jersey, died on October 6 at the Blackburn hotel, Summit, New Jersey. He was born April 18, 1843. He became manager of The Jenkins Rubber Co.—located at that time in Holyoke, Massachusetts—when it succeeded the Tuttle Rubber Works in 1894 and continued in that capacity to the time of his death. He was a veteran of the civil war, having served in company H, fourth regiment of Massachusetts Volunteers. In addition to his rubber interests he was a director in the Union County Savings Bank.

J. C. L. GRAVEL.

J. C. L. Gravel, who for a combined period of 16 years had been connected with the Canadian Consolidated Rubber Co., Ltd., and prior to its formation with the Canadian Rubber Co., died suddenly of pneumonia on September 21. He was sick only four days, up to that time having been busy with the details of his work in the company's sales offices in Montreal. He was a young man of pleasing personality and exceptional industry, and was highly esteemed by the officers of the company and by his associates.

ADDISON F. ROBERTS.

Addison F. Roberts, connected with the Quaker City Rubber Co., died on October 25 at his home, 555 West 160th street, New York. Mr. Roberts was 50 years of age and was identified with the rubber trade. For many years he was connected with the Home Rubber Co. of Trenton, New Jersey, and was looked upon as one of the most brilliant salesmen of mechanical rubber goods in the United States. He was a man of attractive personality and was widely popular. He was a graduate of Princeton and a member of the Princeton Club of New York City.

RESOLUTIONS ON THE DEATH OF MR. BRADY.

At a meeting of the directors of the United States Rubber Co., held October 3, President S. P. Colt called attention to the loss sustained by the Board since its last meeting in the death of Mr. Anthony Brady, and offered the following resolutions which were unanimously adopted:

RESOLVED: That the members of this Board were greatly shocked and overcome at the sudden death of Mr. Anthony Nicholas Brady, in London, on July 22, last.

RESOLVED: That it is with feelings of profound sorrow and regret that we meet together for the first time since Mr. Brady's death. As we now look upon his vacant chair, we fully realize the irreparable loss we have all sustained.

Mr. Brady was a man of rare and engaging personality, and we shall ever miss his kindly, genial presence with us. Though modest and retiring by nature, he was a tower of strength in our deliberations. Mr. Brady was a man of wide general knowledge, and a master of the special subjects in which he was most interested. His mind was characterized by a largeness and breadth of view, a power of comprehension and concentration, and a grasp of details, which enabled him to carry through successfully great industrial enterprises. These rare qualities he brought to bear upon the business of our company. From the very beginning of his connection with us he seemed to grasp by intuition the whole range of our business in all its departments, and this knowledge extended to many collateral and allied subjects.

Mr. Brady became a member of our Board in May, 1904. He has also been a member of the Executive Committee since November, 1904. He came upon the Board at our solicitation, and he has served the company with distinguished fidelity and usefulness. He was always prompt in his attendance at our meetings and apparently never in a hurry to leave. Notwithstanding his many other business interests he gave to this company full measure of his time and thought. He has been most helpful, suggestive and resourceful in our deliberations and most painstaking in his attention to the many duties and responsibilities which have fallen upon him. The rapidity with which his mind detected and analyzed the main points of any matter under consideration was most remarkable, and he always looked to results. As we know, he was not a man of many words. In what he said, however, he was direct, outspoken and frank. He scorned deceit and evasion. He never talked for effect. He was true and loyal at all times. We shall ever miss his untiring devotion to the best interests and welfare of this company, the wisdom of his counsel, his wide experience and sound judgment; and we shall ever remember him with esteem and affection. Above all we feel today the personal loss of a dear, steadfast and loyal friend and helper.

RESOLVED: That this Board tender to the family of Mr. Brady their sincere and heartfelt sympathy in their great sorrow, and this testimony of the regard and honor in which Mr. Brady was held by his fellow directors and the officers of the company.

THE EDITOR'S BOOK TABLE.

HENDRICKS' COMMERCIAL REGISTER OF THE UNITED STATES, for Buyers and Sellers. New York, 1913. Samuel E. Hendricks Co. [Cloth, quarto, 1666 pages. Price ten dollars.]

LISTING the names and addresses of manufacturers of and dealers in everything in the shape of materials, machinery, tools, etc., employed in the architectural, mechanical, engineering, contracting, electrical, railroad, iron, steel, hardware, mining, mill, quarrying and kindred industries, the twenty-second annual edition of the above work has undergone, this year, an important change in its system of indexing. In place of referring the engineer to the page on which the article is classified, as in previous editions, the number given refers to the classification itself, in which, in alphabetical order, are the names of the firms engaged in the particular line of business. This will greatly simplify the work of reference and render easily available the 390,000 names and 55,000 classifications the Register contains, removing all difficulty in locating the manufacturers of any article. As a buyers' reference, for mailing purposes, with its details of information, including titles of identification, trade names, etc., the Register will prove invaluable. The classification of the advertising with the industry to which it relates, is another commendable feature, and with the excellent printing, greatly adds to its value.

REPORT OF THE CEYLON CHAMBER OF COMMERCE FOR THE Half Year Ended June 30, 1913. Colombo, Ceylon, 1913. The Colombo Apothecaries Co. [Paper, 8vo, 105 pages.]

PREPARED by a committee for presentation to the Chamber, the officers and members of which are recorded in a list prefacing the document, the report deals with the various questions considered by the chamber during the period covered, most of which relate directly to local affairs and business matters.

An exception must be made in regard to the subject, "India and Naval Defence," under which head the propriety of India making a contribution to the cost of the British Navy, is discussed at length, as is also the proposition to levy an export tax on tea, rubber, cacao and cardamons shipped from Ceylon, the general opinion being in favor of a specific duty levied per hundred pounds.

Another subject that received considerable attention was the frequent occurrence of thefts of rubber, and the circular issued to members of the chamber calling their attention to the necessity for the exercise of care in the purchase of rubber in unusually small quantities; and at the instance of the sub-committee on rubber, a recommendation was adopted that no lot of

rubber of less than 100 pounds be catalogued for sale. A circular informing them of this action on the part of the rubber committee has been sent to all members of the exchange.

The report also contains statistical matter showing the financial status of the exchange.

NEW TRADE PUBLICATIONS.

RUBBER FROM FOREST TO FOOT.

THE great development of the rubber industry during the last decade, the notable boom that took place in rubber plantation shares three years ago, enriching many people in a few weeks and later impoverishing others in about the same length of time, and the fact that millions of people take a personal financial interest in tires, have brought about a general desire on the part of the public to know something about rubber, what it is, where it comes from and how it is manufactured. Students like to write essays on this subject, and school teachers like to get rubber literature so that they can answer questions.

To satisfy this general thirst for rubber knowledge, Mr. Palmer, the head of the advertising department of the United States Rubber Co., has prepared a very handsome little pamphlet of 30 pages entitled "Rubber from Forest to Foot," in which the whole rubber story is told—something of its history; how it is gathered in South America and on the plantation; what it looks like when it reaches the factory, and how it is then washed and dried, compounded and calendered, cut and assembled, varnished and vulcanized and made into rubber boots and shoes. This information is given in the form of a fireside conversation. A certain boy, John, much pleased with his rubber boots, asks his father what rubber is and where it comes from, and the father—evidently a widely read man with a retentive memory—promptly gives him the information as described above. The book is handsomely printed, liberally illustrated and has a most attractive colored cover showing a rubber scene in the Amazon jungle.

A CONSTANT REQUIREMENT.

Any one doubting the value of the rubber stamp as an aid in the routine of the office, needs only to try what it would mean to do without that indispensable adjunct to business. He (or as in many cases, she) will soon find out its value. To discourse on the merits of the article would thus be "tedious as a twice-told tale," but it is seldom that its uses are so graphically brought forward as in the new catalog of the J. P. Cooke Co., Omaha.

Prominent among the many opportunities of using rubber stamps illustrated by this booklet, are receipts and endorsements, the writing of which would necessitate loss of time. Another important feature of the catalog is the range of time stamps for various purposes, while the many occasions calling for the use of the name of a firm, without the necessity of a personal signature, are fully provided for. The possibility of getting up forms by means of rubber stamps is likewise shown by various examples. This is a catalog to be preserved for reference and frequent use as required. Its 64 pages fully demonstrate what the rubber stamp can do.

THE DURST MECHANICAL LINE.

Few lines present so much detail as those which go to make up a typical collection of rubber and metal specialties; hence the practical value of the illustrated catalog by which the Durst Manufacturing Co. presents its various grades of mechanical rubber goods and plumbing sundries—including tubing, plungers, washers, strainers, and other articles. It illustrates a full assortment of bathroom accessories, such as corrugated rubber mattings, shampoo sprinklers, shower baths and curtains, beside mentioning faucets, fittings and gas irons.

The catalog contains 30 pages, each having many cuts, so that the reader has no difficulty in forming an idea of the company's capacity. Among other lines featured should be noted rubber heels, now frequently distributed in conjunction with small metal goods.

As a special catalogue "Drummer No. 7" is to be highly commended, and should bring about an extensive trade in the articles represented. [The Durst Manufacturing Co., 88-90 Reade street, New York.]

A NEW WALES-GOODYEAR BEAR.

Many years ago the Wales-Goodyear Co., which manufactures footwear and has long been famous for its arctics and gaiters, adopted a representation of a polar bear as part of its trade mark; a wise idea, because there are a great many people who can't remember names while everybody can remember pictures, and thousands of Wales-Goodyear rubbers have been sold to people who simply said: "I want the rubbers with the bear."

A dozen years ago this company issued a tall cut-out showing a polar bear rampant, wearing arctics on all four feet and perpetrating a lively dance on a cake of polar ice. It attracted a great deal of attention and ran through several editions, but evidently the popular appetite for Wales-Goodyear bears has never been fully appeased, for the company has just issued another polar bear cut-out, the animal being distinct from the first one, as this fellow is walking up out of the water, erect and with a look of challenge on his face and holding in his front paws a large four-buckle gaiter. This cut-out stands about 16 inches high, is done in the necessary colors to reproduce a polar bear with a north pole background, and is bound to attract attention in any window where it is placed; and it will still further impress the general public with the fact that the Bear Brand of rubbers is made by the Wales-Goodyear Co.

L'AGRICULTURE PRATIQUE DES PAYS CHAUDS.

The new series of "L'Agriculture Pratique des Pays Chauds," a monthly review of tropical agriculture, will be published under the direction of Messrs. Edmond Perrier, member of the institute, director of the National Museum of Natural History, Paris; H. Lecomte, professor at the museum; M. Costantin, member of the institute, professor at the museum; D. Bois, assistant at the museum; H. Jumelle, professor of the faculty of sciences at Marseilles; M. Pillicure, member of the institute, of the station for vegetable pathology; M. Dubard, professor of the faculty of sciences at Clermont-Ferrand; Guillaume Capus, former director-general of agriculture and commerce, in Indo-China; Maurice de Vilmorin, member of the *Société Nationale d'Agriculture*, administrator of the Jardin Colonial, with M. Augustin Challamel as editor. The editorial offices of the publication have been removed to 17 rue Jacob, Paris. "L'Agriculture Pratique des Pays Chauds" is a handsome, profusely illustrated periodical, published monthly in France, and dealing with agricultural operations as carried on in tropical countries. The annual subscription is 20 francs ($3.86) for all countries in the postal union.

In the third number of the "Boletim de la Superintendencia da Defesa da Borracha," the various sections of this official Rio publication are filled with useful and interesting matter affecting rubber. Special attention is given to the decrees lately issued with reference to that subject, while the group of statistical tables shows general as well as local results of a valuable character, both for immediate use and reference.

As the official organ of the Brazilian government the "Boletim" merits the attention of all connected with the rubber trade. Its statistical features are referred to in detail in another column.

An American consular officer in France reports that an agent in his district handling automobiles desires to get in touch with American automobile supply manufacturers. Catalogs, price lists, etc., are desired. Correspondence should be in French if possible. The report is No. 11,841.

New Rubber Goods in the Market.

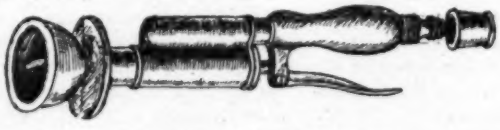
BAILEY'S RUBBER NAIL BRUSH.

THE accompanying illustration shows the "Wizard" Rubber Nail Cleaner, an entirely new article just placed on the market, being one of the latest inventions of Mr. C. J. Bailey, of C. J. Bailey & Co., 22 Boylston street, Boston

This rubber brush is absolutely sanitary and not only cleans the nails perfectly without irritation of the skin or cuticle, but is provided with a polishing device that permits of the use of polish on the surface of the nail, and also with an indent to form the crescent.

A CAR WASHER WITH A RUBBER CAP.

An English company is making a nozzle for washing autos and other carriages which is supplied, among other new features, with a rubber cap and rubber collar. The rubber collar

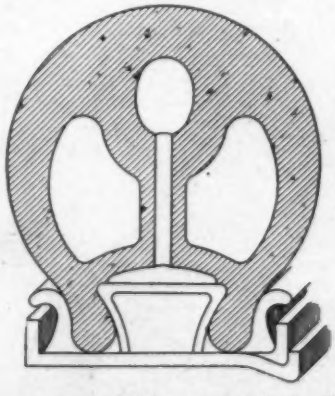


THE ADAMS CAR WASHER.

is to protect the nozzle in case it falls on the ground, and the rubber cap is to prevent the scraping of varnish and paint on the auto or carriage. [Adams & Co., Tunbridge Wells, England.]

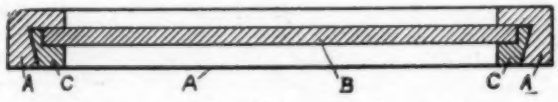
A ONE-ATMOSPHERE CUSHION TIRE.

The accompanying diagram shows a cushion tire in which the air circulates at atmospheric pressure, the object of the design being to avoid the necessity of using an inner tube and to rely wholly upon the resiliency of the material. The tire is a multiple cushion device made up in segments possessing a special interlocking feature, which holds them in alignment on the wheel rim. Inside, and continuous with the tread, is an arch formation, supported, through a column, by another arch forming the base. This base fits into the rim of the wheel in such a manner that the weight upon the tread of the tire secures the base tighter at the rim in all directions, and at the same time forms a series of air chambers or tubes which provide resiliency. Should any section of the tire be destroyed, it can be easily replaced in a few minutes by inserting one or more segments as required. Since the air in the chambers is at atmospheric pressure, it is evident that there can be no blow-outs and that punctures can have no effect. [Dr. A. M. Smith, Petersburg, Virginia.]



RUBBER STRIPS FOR SECURING WINDOW GLASS.

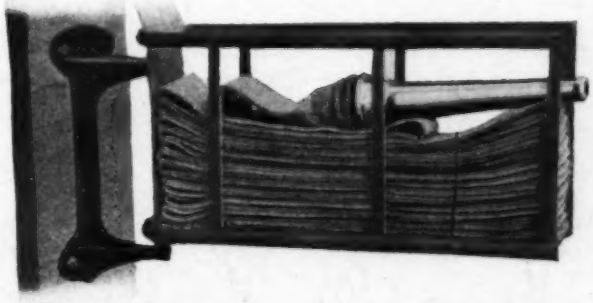
One of the newest uses to which rubber may be put, and in which it may, perhaps, be widely adopted during the next few years, is brought out in a recent patent. This patent relates to a method of fastening window glass by means of rubber strips instead of by the use of putty, as has been the custom for many



years. In the accompanying illustration *A* represents the sash of the window and *B* the glass, altho the claim does not limit the adaptation of the fastening to glass alone, but to any form of panel. At *C C* are shown cross sections of two of the vertical strips of rubber. It will be seen that the sash members are cut with inwardly beveled grooves to conform to the beveled edges of the rubber strips which hold the glass in place. When the glass is set in the sash and the retaining strips are forced into position, the parts fit tightly together, keeping out all moisture. One advantage of this method of fastening is that the glass can be removed at any time without the usual trouble and dirt which attend the use of putty. [United States Patent No. 1068407.]

A VERY CONVENIENT HOSE RACK.

Here is a compact and convenient rack for inside fire protection for factories or warehouses. It is made of half-oval steel, is light, looks well and keeps the hose out of the way



and yet within easy reach. It can be supported by a bracket against the wall, as shown in the illustration, or by clamps around a standpipe. [Elkhart Brass Manufacturing Co., Elkhart, Indiana.]

TO PROTECT GAS TUBING.

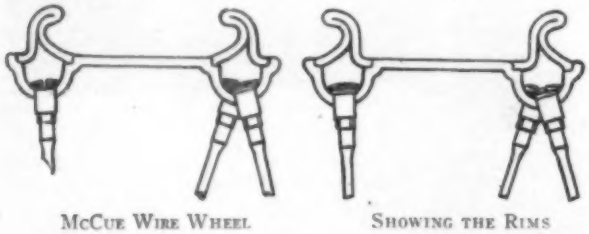
There are three excellent reasons why the motorist should wish to avoid the escape of acetylene gas from the tube that conveys it from the tank to the lights, viz.: the gas is expensive, the odor is exceedingly disagreeable, and there is always the element of danger from fire in the escape of this gas; and yet it is liable to escape in time if the means of communication between tank and light is an unprotected rubber tube—especially if this tube passes through any metal work where the constant vibration of the car is likely to wear it. Even apart from this possibility, rubber naturally deteriorates when exposed for a long time to the air—at least it is liable to harden and crack, so that it is better to have it protected. Tubing to cover exposed parts can be secured at any electrical supply house. Some manufacturers of cars are putting in tubing covered by braided linen, which makes an excellent protection.

A RUBBER EAR MUFF.

Men who live in the city and ride to their offices in the morning and back at night on the elevated or in the subway are not likely to feel a pressing need for ear muffs, but in the country, and particularly in that part of the country where they enjoy low thermometers many times during the winter, the ear muff is certainly a desideratum. Ordinarily, this ornamental piece of wearing apparel is made of wool, but here comes a citizen of Connecticut who has constructed an ear muff of rubber. It consists of a cup of hard rubber, with edges finished off in soft rubber and made to fit down over the ear in such a way that a suction will be formed—presumably for the purpose of keeping this muff securely in place. Probably the force of this suction is not very strong; if it were it would hardly be beneficial to the drum of the ear. This is a new use for rubber, but not one, it is to be feared, that will materially assist the Middle East planters in disposing of the 300,000 tons of crude rubber which they expect to have ready for the market within the next four or five years. The accompanying illustration shows a pair of these hard rubber ear muffs with supporting arms that go up over the head. The inventor, Harry Markoff, of Stafford, Connecticut, has applied for a patent.

WIRE WHEELS AND QUICK TIRE CHANGES.

One of the principal advantages pointed out for the wire wheel for automobiles is that on account of its lightness an extra wheel and tire can be easily carried to replace a damaged wheel or tire. Further improvements in the construction of the wire wheel have been made by The McCue Co., of Buffalo, New York, the principal feature embodied in these improvements, as will be seen in the drawings herewith, being that the portion of the rim against which the tire rests is perfectly flat and smooth, avoiding corners or projections which are liable to cut or pinch the tire or tube.



McCUE WIRE WHEEL Q. D. RIM.

SHOWING THE RIMS REVERSED.

The grooves in which the outer ends of the wire spokes are attached are pressed in the rim, which allows this part to be made integral with the body of the rim and at the same time to add strength to the wheel. It is also pointed out that this construction adds to the radiating surface and aids in keeping the tire cool. Another feature of this wheel is that the rim portions are reversible, in order to accommodate either clincher or straight side tires.

RUBBER MILLINERY.

In the millinery parlors of a New York department store there was recently exhibited a lady's trimmed automobile hat, of which rubber was the chief component material. Skilful treatment in the course of manufacture had given it the appearance of a lusteriess taffeta, and it was claimed that the creation would suffer no injury to shape or color, no matter how much it might be exposed to rain, wind and dust.

THE HANDY RUBBER MALLET.

Every automobile owner has had the experience of trying to place a tire on a rim and of having to pound both tire and ring to get them in their proper positions. By this method many tire casings have been weakened and rings bent by the inadvertent use of steel hammers.

The rubber mallet illustrated herewith overcomes these disadvantages and eliminates all possibility of damage. The head is made of soft rubber and the handle of hickory. It is capable of withstanding a powerful blow, and there is no danger of denting or damaging the material which is being worked upon. This tool can also be used in repairing windshields, in working around the body of a car, and in fact is useful in any place where the machinist's hammer is worthless on account of its steel head. It takes the place of the ordinary wooden mallet and often of the steel hammer. [The American Auto Supply Co., New York City.]

A POCKET RUBBER DRINKING TUBE.

All those people who lie awake nights trying to contrive methods of eluding the ubiquitous germ, will be pleased to know that a little rubber tube has been devised, to be carried in the pocket, which has one end adapted to going over the ordinary faucet, while the other acts as a mouth-piece. In this way, it is contended, one can get a perfectly sanitary drink. It is difficult to see, however, how this has any advantage over the collapsible rubber cup, which enables one to drink in sanitary fashion and at the same time see what he is drinking.

A CURRENT PHRASE ILLUSTRATED.

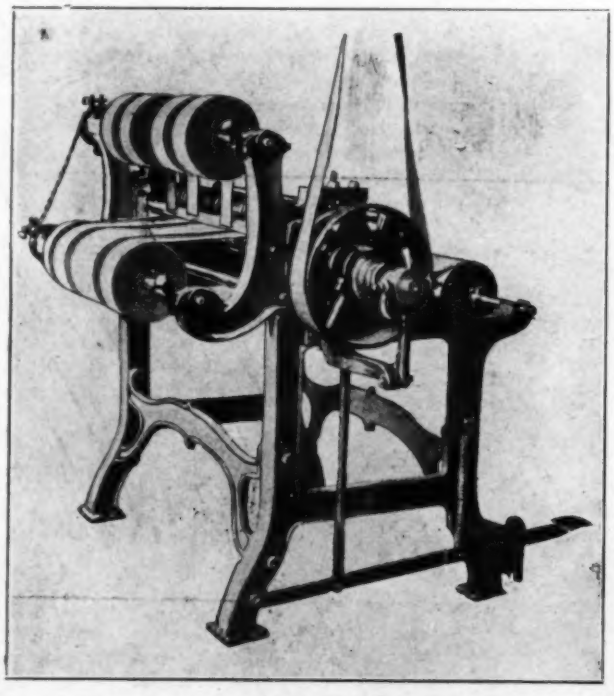
That expression, "Talking through your hat," is not particularly chaste English, but everybody seems to know what it means, and the Michelin Rubber Co., in a leaflet recently distributed to the trade, illustrates this expression by showing the picture of a man — who looks like a lobbyist or a promoter — whose hat is made up of a series of tires with fancy treads. The text that accompanies this illustration is an argument on the part of the Michelin people with intent to show that their plain tread contains corsiderably more rubber for the money than these fancy treads, which they refer to as "sculptured tires." It is a humorous conceit, as will appear from the reproduction herewith.

New Machines and Appliances.

KEYSTONE RUBBER SLITTER AND REWINDER.

ONE of the newer types of rubber-slitting machines is shown in the accompanying illustration. This apparatus, which is known as the Keystone, is designed for cutting narrow widths of material from wide rolls and rewinding these smaller rolls in the one operation. It has found a wide use in slitting rubber in various forms, as well as for cutting cloth for insulation purposes.

As seen in the illustration, the rewinding shafts are driven by a chain and sprocket instead of by a leather belt, in order to eliminate slipping. For the purpose of maintaining a uniform tension on the rewinding bar, a slipping friction is provided. This causes the rolls to be wound with a uniform hardness which, however, is variable by means of an adjustment of the rewinding tension. The cutting knives are ground in a slightly cupped shape so that they will remain sharp as long as possible. The machine is equipped with special thrust collars which provide a means of taking up any wear in the ends of the knife shafts. This keeps the cutting edges close together and makes regrinding less frequent. A single set screw holds each cutter in position and each knife can, therefore, be set very quickly for



KEYSTONE SLITTING AND REWINDING MACHINE.

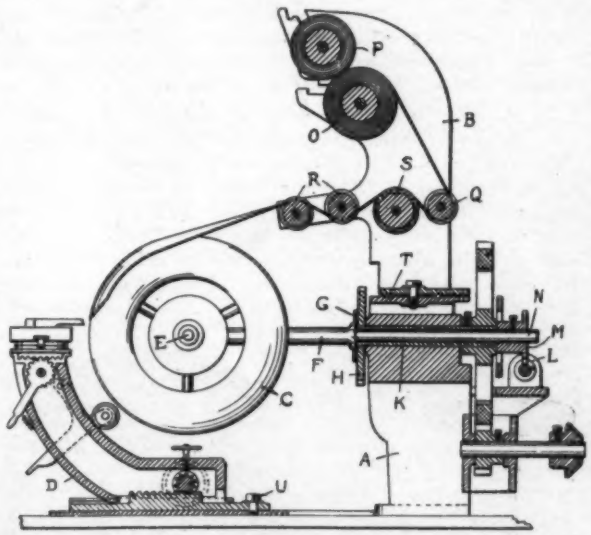
the different widths to be cut. Special cutters are made to cut strips as narrow as three-eighths of an inch.

There is provided a sliding rule which swings down to the knives and results in a great saving of time when setting the machine for different sizes of work. The rewinding bars, which must be taken out each time a full-size roll has been rewound, are held in their bearings by means of an automatic latch cap, the mere lifting or lowering of which releases the roll or locks it in place. [Charles Beck Co., 609 Chestnut street, Philadelphia, Pennsylvania.]

AUTOMATIC MACHINE FOR BUILDING PNEUMATIC TIRES.

UNTIL a comparatively short time ago motor vehicle tires were built up by the slow and uncertain method of laying on the fabric and rubber by hand, this process often resulting in unevenly-stretched layers. Recently, however, a number of machines have appeared on the market for accomplishing this work automatically. One of these, the subject of a recent United States patent, is briefly described herewith.

Referring to the drawing, *A* shows the base of the machine frame, *B* the roll-carrying head, *C* the core over which the tire is built up, and *D* a pivoted arm which carries various tools for finishing the tire during the building process. The core *C* is fastened to the stub shaft *E*, mounted on a bracket *F*, and is actu-



AUTOMATIC TIRE BUILDING MACHINE.

ated by a set of bevel gears (behind the core and not seen in the drawing) through the spur gears *G* and *H*. This set of gears is mounted on the tubular shaft *K*, which carries a change speed gear set. By means of the worm *L* and the gear *M* attached to the shaft *N*, the core *C* may be made to assume any position from the horizontal to the vertical.

The head *B* carries a roll of friction cloth, layers of which are stretched and laid on the core *C* as the first step in the construction of a tire. This friction fabric is wound on a strip of ordinary cloth in order to separate the layers as they are rolled up and to prevent them from adhering. One of these rolls is indicated at *O*, while *P* shows a roll on which the protecting cloth is wound as the friction cloth is unwound, the weight of the roll *P* being sufficient to drive it as it rests against the periphery of the roll *O*. The drawing shows a strip of material passing over the stretching and guiding rolls *Q* and *R* and the brake roller *S*, and being wound on the core. As the fabric is wound on the core it is stretched lengthwise by means of this brake roller. It is absolutely essential that the fabric be laid on the core evenly and that their center lines coincide. It often occurs that the fabric is not wound evenly on the roll *O*, and as a result it will not wind truly on the core unless some means is provided to overcome the difficulty. To accomplish this result the head

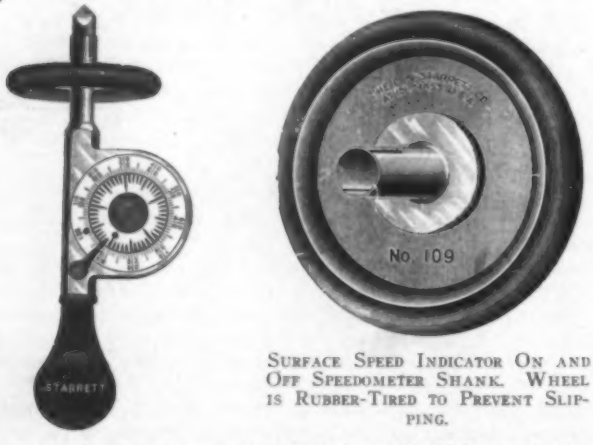
B is mounted on a roller bearing *T* so that it will easily follow the direction of the core *C*.

As each layer of fabric is placed on the core, various rolling, compressing and stitching tools carried by the arm *D* are brought into play to form the material closely about the core. This arm is pivoted to the base at *U* so that it may be swung around to present the various working tools to the tire. After each layer of fabric is laid on the core, a stock rack is moved over in line with the tire. This rack contains the various materials entering into the tire and these are fed onto the latter in layers by means of a carrier. For this purpose the core is made to rotate in the opposite direction. After each layer of material is laid in place by the carrier the rack is swung out of position and the arm *D* with a suitable tool is swung back to work the material into a finished surface. These operations are continued until the tire is built up. In order to place the wires in the beads or rim edges, the core is turned to a horizontal position, first on one side and then on the other.

This machine is claimed to greatly facilitate the manufacture of tires owing to the fact that the core may be power-driven at varying speeds, and also for the reason that the tool arm and stock rack can be moved away from the core and the latter turned to various positions. This makes it easy for the operator to reach all parts of the tire to perform the trimming and finishing processes. [U. S. Patent No. 1,042,649.]

A SURFACE SPEED INDICATOR.

In almost every machine there is a certain speed at which the greatest amount of work is turned out or at which the greatest efficiency is obtained. This is especially so in rubber working machinery. For this reason it is often of advantage to know the approximate speed at which the surface of a pulley is traveling without having to calculate it from the revolutions. The illustrations show an attachment intended for this purpose, and which has been designed for application to an ordinary shaft speedometer. It consists of a rubber-banded wheel which may be instantly slipped on or off the spindle, and which in operation is pressed against the face of a shaft or pulley for a definite period, such as a minute. By dividing the resulting revolutions of the dial by 2, the number of feet per minute the surface of the object is traveling is obtained, since each turn of the small rubber-tired wheel means a linear movement of six inches. The device is not claimed to be exactly accurate, but adequate approximate results are obtained by its use. [The L. S. Starrett Co., Athol, Massachusetts.]

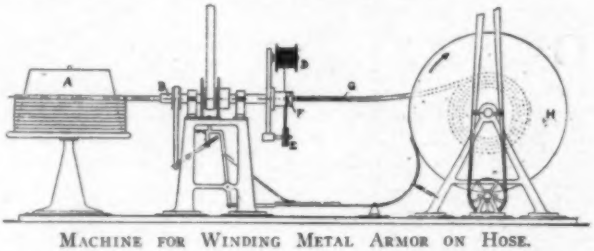


SURFACE SPEED INDICATOR ON AND OFF SPEEDOMETER SHANK. WHEEL IS RUBBER-TIRED TO PREVENT SLIPPING.

A citizen of Sabine, Texas, has invented a life preserver consisting of two tubular rubber belts, one going around the waist and one fastening under the chin. The idea is to inflate both of these with air and fasten them properly in position and then float as long as the emergency may require.

ARMORING MACHINE FOR HOSE AND CABLE.

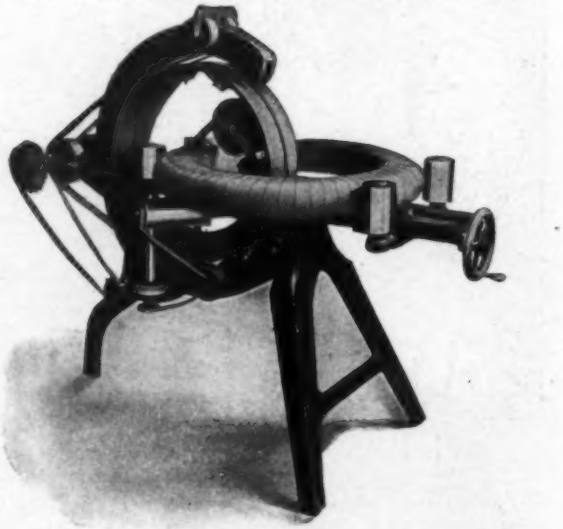
AMONG the rubber working machines which have been recently placed on the foreign markets, is an automatic device of simple construction for placing reinforcement on hose. It is designed especially for winding metal armor on rubber hose or cable, but may also be employed in coiling sheet iron, rope, etc., and it will handle round, half-round or flat wire equally well. The hose to be armored is coiled on the reel *A* and passed through the hollow shaft *B*, emerging from the opposite end. The wire armor is wound on the reel *D* and the loose end passed over the pulley *E*, from which point it is carried up to the guide *F* surrounding the hose *G*. As the receiving reel *H* is set in motion through a belt from the transmission shaft, the hose is pulled forward at a definite speed. Another belt sets the shaft carrying the coil of wire in motion, so that the armor is evenly coiled around the hose. [W. Furstenberg, Bruxelles-Anderlecht, Belgium.]



MACHINE FOR WINDING METAL ARMOR ON HOSE.

A CONVENIENT TIRE WRAPPING MACHINE.

One of the newer tire wrapping machines, designed for automatically wrapping the treads of automobile tires preparatory to vulcanizing, is shown herewith. The tire lies flat on the table and horizontal rollers and is made to revolve horizontally against the stationary rollers in the rear and the adjustable rollers at the front as the tread is wrapped. The rotary drum carries a spool upon which is wound the tape for wrapping the tire. This drum revolves on fiber rollers and is driven by two belts. As the drum revolves it carries the spool around with it, wrapping the tape tightly around the tread. At the same time the tire advances latterally so that when it has made one complete revolution the tread is entirely covered. This machine is built for operation either with or without an electric motor, and weighs, ready for shipping, 800 pounds. [Charles E. Miller, Anderson, Indiana.]



MILLER TIRE WRAPPING MACHINE.

The India Rubber Trade in Great Britain.

By Our Regular Correspondent.

THE PRICE OF RUBBER.

THE low price to which plantation rubber has fallen has given rise to a panicky state of mind in England, which doubtless finds no parallel in America, where, I understand, rubber plantation shares are by no means so widely held as they are in Great Britain, as the result of the boom. Perhaps the most interesting outcome of the situation is the number and variety of the suggestions put forward by writers in the "Financial Times" and other journals as to how the long-suffering shareholders—many of whom, by the way, have been receiving dividends of 100 to 200 per cent.—are to get level with the greedy and unscrupulous manufacturers. No one gauges, says one scribe, the gigantic profits being made by the manufacturer. Probably not—for the best of reasons. The position no doubt is irritating to many people, but I do not know that these persons shed many tears of sympathy with the manufacturers, who were at their wits' end to know how to tide over the troubles caused by the high prices of three years ago. One writer suggests that reclaimed rubber is playing a large part in the debâcle and angrily suggests that the Board of Trade should make it obligatory for goods containing reclaimed rubber to be branded as inferior. But why stop at reclaimed rubber as reducing the amount of new rubber used? Why not brand the admiralty mixings for containing so much zinc oxide? After all that has been adumbrated as to the extended use of the rubber pavement as the panacea for over-production, it comes as a cruel blow to hear that the rubber pavement at the Savoy Hotel is to be replaced by asphalt, the main reason being that as the bulk of the vehicles are rubber tired, a noise deadener is not required. Further, it is said—and no doubt with truth—that the oil dropped from motor vehicles damages the rubber.

The correspondents, of course, include those who are astonished at the ruling premium on Fine Hard, in the face of the fact that their own chemists have shown that there is no ground for the statement that the wild product is superior to that from the immature plantation trees. Perhaps Professor Dunstan's statement that the latter generally is not equal to Fine Hard will be seriously regarded by those authorities who persist in ignoring the fact.

The topic of the moment is the proposed Selling Exchange, as to the advisability and prospect of which considerably divergent opinions are expressed. I do not propose to discuss the matter here, and shall merely say that perhaps not unnaturally the idea does not meet with the approval of the merchants, who under present conditions buy the rubber and resell to the manufacturers, these latter not attending the auctions personally. It is hinted that the merchants have been doing very well lately, in the falling market; and shareholders who say that the manufacturers are making abnormal profits might correctly include the merchants in their criticisms.

LEYLAND & BIRMINGHAM RUBBER CO., LIMITED.

Presiding at the annual meeting of this company in September —when a dividend of 7½ per cent. for the year was declared— Mr. R. T. Byrne made special reference to the fire of January last, already referred to in these notes. They were much indebted, he said, to Mr. Roberts, of the Wood-Milne Company, for placing his works at their disposal for certain purposes. The new buildings which are now being erected will afford 20,000 square feet of extra space over that occupied by the burned premises. Under the management of Mr. R. T. Goudie and Mr. Anderson, the Glasgow works for garments and golf balls had made good progress, labor conditions being more favorable than at Leyland. Mr. Byrne said with regard to the price of rubber that he preferred a steady price to a low one, as when rubber was cheap their customers were exacting in efforts to obtain what he called absurd prices.

ACETONE EXTRACT.

The article on this subject by Professor Jones in the September issue of the INDIA RUBBER WORLD will doubtless have interested many readers. Beyond the particular points brought out, it serves to emphasize the fact so frequently ignored—that rubber analysis, if it is to be at all accurate, is a matter taking up considerable time and cannot therefore be adequately remunerated by a very few shillings. The matter of the difficulties surrounding rubber analysis wes referred to by Professor Dunstan in a recent lecture in London, and it is somewhat depressing to hear that despite all the methods advocated in recent years by German chemists, practically no progress has been made in the direct estimation of rubber in a compound. With the methods advocated by Professor Jones to avoid sources of error there will probably be no disagreement among rubber chemists. Undoubtedly in some forms of extraction apparatus the acetone extraction takes place at considerably below the boiling temperature—a matter calling for remedy. In addition to paraffin and mineral oil, bitumen from mineral rubber might also have been mentioned as occurring frequently in the acetone extract. This, of course, does not affect the rubber extract determination, as, being unsaponifiable, it goes into the ether extract of the soap solution. In the case of commercial analysis the term acetone extract is somewhat loosely used and analyses giving reports should always state clearly whether the extract is given as a whole or has been subdivided so as to give the actual organic extract derived from the rubber content of the sample. It certainly has been generally accepted that vulcanization increases the resinous contents of rubber, and it is interesting to note that Professor Jones combats this idea, his experiments having shown that where this increase has been found it has been due to the mixing on the rolls and not to the subsequent vulcanization. He says that where the compound is properly made there is no increase in organic extract at any part of the process, this evidently being due to wrong procedure, tho whether in the composition of the mixing or the method of mixing is not specified. The point, however, is of interest, and is one, moreover, on which more is likely to be heard.

W. T. GLOVER & CO., LIMITED.

On the occasion of a general meeting in Manchester of the Institution of Mining Engineers a large party of members paid a visit to the Glover Works on September 25, and were entertained at luncheon, Mr. E. A. Claremont, the managing director, replying to the vote of thanks. The works of this company, now situated in Trafford Park, were established 45 years ago, in Springfield lane, Salford, the move to the present site being made in 1900. The business has shown a steady increase and further extensions are now in progress. From the point of view of this journal, it is interesting to note that tho until quite recent years the firm purchased its rubber and rubber compounds from rubber manufacturers, it now has a complete rubber manufacturing plant. As it has also a complete wire drawing and twinning plant, the company is quite self-contained. Cables for mining use have long been a specialty, so the mining engineers naturally found a great deal to interest them in their inspection, large numbers of cables, from double wire armored solid bitumen shaft cables

weighing up to 7 or 8 tons, down to flexible trailing cables for coal cutters, being seen in various stages of manufacture. A comprehensive display of accessories for suspending, cleating and jointing mining cables also attracted much attention.

A demonstration was given of the fire-resisting cables, these being braided with asbestos and specially prepared yarns. Besides vulcanized rubber, paper and bitumen are now largely used, the last particularly for mining cables. The raw bitumen is cut up and mixed in large rolling machines with the various ingredients necesssary to make it into a suitable compound for applying to the cable. This compound is then further masticated and applied to the stranded cable by means of forcing machines. All cables are immersed in water tanks for a considerable period to prove their immunity from faults or slight mechanical defects. For lead-covered cables a more drastic test is applied, the firm having patented a special tank in which hydraulic pressure is applied to the cables at 100 lbs. per square inch. The only rubber mentioned to the visitors as being used for insulation was fine hard Pará, a statement which would probably not be too pleasing to holders of plantation shares.

LEGAL CASE.

In a recent criminal case at Manchester involving the purloining of washed and masticated rubber from Messrs. Moseley's works, a passage of arms took place between the solicitor for the defendants and Mr. Blick, the successor of the late Mr. Blundstone as manager of the Messrs. Moseley's works. The solicitor asserted that the rubber in question could not be identified as having come from one particular works, while Mr. Blick said he had no doubt whatever that it was his firm's rubber, tho when pressed on certain points of detail he said he was not there either to educate solicitors or to enlighten the trade generally on knowledge he had acquired during his extended experience. His identification was complete both because of the black streaks in the rubber due to the outer skin having been left on in this particular case, and also by the width of the pieces of washed rubber being exactly the width of the machines used by his firm. Further, the marks of corrugation had the same pitch as those given by his firm's machines, which machines were made by the Messrs. Moseley themselves. It was not usual in the trade to leave the skins on in the washed rubber, tho they did it in this particular case. On being shown another piece of washed rubber with black streaks in it the witness would not agree that it was similar to his firm's, the end of further questioning being a remark by the stipendiary magistrate that the court had to accept what the witness said as an expert. He, the magistrate, did not know much about rubber. In this case one may remark in passing that the magistrate was in the rather unusual position of listening to expert evidence on one side only. When the High Court judges have to deal with rubber, they usually find experts who totally disagree with each other. The prisoners in the case were duly convicted. The rubber in question, I may say, in conclusion, changed hands more than once. It was first sold at 2s. per lb., resold by the buyer at 3s. 5d., the last purchaser selling at 3s. 10d.

EUROPEAN RUBBER MANUFACTURING VERY DULL.

A prominent member of the European rubber trade states, in a letter just received, that he has recently made an extensive tour among the rubber manufacturers of Europe and finds the universal complaint of poor business. He mentions one manufacturing concern in Germany which has just discharged 1,700 workmen, another factory in the same town having discharged 800 workmen, while the plants that are running are, as a general thing, operating only on half time. The manufacturers attribute this condition to the drop in rubber prices caused by the over-production of plantation rubber, but our correspondent does not believe this to be the true cause. He attributes the poor business simply to the reduced consumption.

CHANGE IN BELGIUM'S TARIFF ON RUBBER TIRES.

In accordance with a Royal decree, the ad valorem duty on rubber tires imported into Belgium will be replaced by a specific duty in accordance with Article 4 of the law of June 16, 1905. The new schedules will be as follows:

	Per 100 Kilos (220.4 Lbs.)
Rubber tires for the wheels of vehicles, including those into which other material enters but in which rubber predominates, according to weight—solid tires	65 francs ($12.54)
PNEUMATIC TIRES.	
Shoes for automobiles and motorcycles, with iron-studded protective tread	130 francs ($25.09)
Other kinds	116 francs ($22.38)
Outer tires for other vehicles of less weight than 21.16 pounds	90 francs ($17.37)
Above 21.16 pounds	60 francs ($11.58)
INNER TUBES.	
For automobiles and motorcycles	170 francs $32.81)
For other vehicles (including complete pneumatics known as "boyaux," or tires for racing wheels, consisting of an outer protective shoe and an inner air-tube)	150 francs ($28.95)

NOTE.—Separate parts of outer tires (tread reinforcements, protective bands, etc.) consisting chiefly of rubber, dutiable the same as complete outer tires.

SWEDISH RUBBER SHOES FOR AMERICA.

An official report from United States Consul General Ernest L. Harris of Stockholm, Sweden, states that the nine rubber factories in that country employ 1,525 hands, and produce goods to the value of about $2,500,000 a year. Stockholm exports to the United States included rubber shoes to the value of $80,922 in 1911 and $137,057 in 1912. These are undoubtedly old shoes intended for the reclaimers.

SALES ASSOCIATION FOR GERMAN INSULATED WIRE MANUFACTURERS.

The German manufacturers of insulated wires have combined in the formation of an association under company rules and regulations for the sale of their product, this association to make all sales, on common account, for its members, who are to be allowed a suitable profit. These manufacturers about a year ago formed an association for price regulation—of which this new company idea is probably the natural outgrowth. Prices are said to have shown no particular change. Telephone and telegraph wires are not to be included in the sales to be made by the new association.

INCREASE IN PROWODNIK CAPITAL STOCK.

The Prowodnik Caoutchouc Co., of Riga, Russia, manufacturing the Prowodnik tire, is reported to be enjoying a very satisfactory business, and to have paid for the last four years annual dividends of 12 per cent. This company has recently increased its capitalization to 12,000,000 roubles ($6,000,000), this being 3,000,000 roubles ($1,500,000) in excess of its former capital. One-half of the receipts from the sale of this additional capital stock—sold at 100 above par—has been added to the company's reserve fund, the other half to be devoted to the general working capital.

THE FRENCH ARMY'S VAST RUBBER CLOTHING SUPPLIES.

COLONEL FORBES, M. E., a well-known designer of refrigerating apparatus for the United States Navy, and an eminent authority on steam fittings, in a talk with a reporter for THE INDIA RUBBER WORLD, spoke interestingly of the great care which the French Republic exercises in providing her soldiers and sailors with the best kinds of rubber clothing. Colonel Forbes is almost the last survivor of the Americans who served in the French Army in the Franco-Prussian war. Being a student of engineering in Paris when the war broke out, he promptly volunteered and went at once to the front, serving as a sharpshooter and scout until the end of the war. In that war the French had no rubber clothing nor blankets, and such was the churlishness and heartlessness of many French people to their own soldiers that in the terrible winter of 1870-1 it was a common sight to see exhausted soldiers sleeping in the streets of towns and villages amidst snow, sleet and ice.

Colonel Forbes makes one of his inventions for the French army and frequently goes to France. Being a veteran of the army he is permitted to visit all forts and garrisons, and often makes practice marches with old comrades now high in rank on the French General Staff.

Speaking of rubber clothing for that army, Colonel Forbes says that in the chain of defences that make Paris the world's greatest fortified camp there are rubber blankets and clothing for 550,000 men. Every article is rigidly inspected at stated periods and what time has injuriously affected is removed and new clothing substituted. A vast quantity of other rubber goods, including packing, hose and surgical rubber supplies, is kept in the great storehouses, all of which are underground and are served by electric railways.

The lines of defence are three, the outer being almost 70 miles from the centre of Paris. Each line of defence in its fortifications and warehouses is independent of the other, so that if one be taken by the enemy the troops can fall back to the second, or the third, as a finality, and at each line find enough food and clothing, arms and ammunition to keep 200,000 armed men at full power for two years.

Nowhere else are such quantities of rubber clothing and supplies of special medical and army rubber articles kept in stock. In these stores of the defences of Paris there is a good deal that was made in the United States, and which was bought under very rigidly drawn specifications, demanding the highest grade, regardless of price.

EXCLUDING GERMAN RUBBER GOODS FROM FRANCE.

A law has been passed by the French Chamber of Deputies, and was at last accounts before the Senate for final reading, prohibiting the sale in France of certain nursing teats, made in Germany. It is claimed that being necessarily made by the cold vulcanization process, owing to the incorporation in the material of rubber substitutes that cannot be exposed to a high temperature, they cannot be subjected to sterilizing heat after use. The law after reciting these facts, not only provides for the exclusion of the articles in question, but provides that all nursing teats marketed in France in future shall bear, in addition to the maker's name the legend "Pure rubber," and shall live up to it. While the French advocate the proposed law, as a measure of protection for helpless French infants, the Germans claim to recognize in it a further move towards the restriction of commerce with Germany, that is a survival of the policy of *la revanche*.

Ullmann Bros. & Co., of Hamburg, Germany, whose offices were formerly located at Bergstrasse 28, have removed to Bergstrasse 11.

A FRENCH FORECAST OF THE RUBBER SITUATION.

UNDER the caption "The Future of Rubber," "The Bulletin Officiel de la Chambre de Commerce des Colonies," issued in Paris, which has of late bestowed much attention to the condition of the rubber market, publishes, in its non-official section, an article in which the writer considers at some length the conditions which, within the next few years, at the present rate of progress, the rubber producer will be called upon to face

Starting with the proposition that the year 1918-1919—provided no disaster overtakes them—will see the 532 plantations owned by existing corporations in full yield, the writer claims that their output may be estimated at 300,000 tons. Adding to this the production of Brazil and that of Africa, calculated at between 65,000 and 70,000 tons, there would be a total output of 365,000 to 375,000 tons of rubber, without reckoning guayule, jelutong and reclaimed rubber.

The writer computes the world's consumption for 1913, provided purchasing conditions based on the general prosperity in the United States and Europe are normal, at 120,000 tons; so that an advance in consumption in the six intervening years of 265,000 tons, or, distributed over the entire period, of 44,000 tons a year, would have to take place to bring consumption to a level with production. He does not believe that the rubber industry is likely to progress within the period mentioned to such an extent as to make this increase in consumption likely, and argues that to obviate the disaster that confronts the producer, new uses for rubber must be devised and that this can only be effected by a very material reduction in the selling price.

The article goes on to suggest five francs per kilo (about 45 cents per pound) as a price that would bring out many new uses for rubber and expresses the belief that it could be sold at this price and still pay a good profit to the producer.

RUBBER IMPORTS AT BORDEAUX.

The imports of rubber at Bordeaux are given in an official report of Consul Alfred K. Moe as 3,009,119 pounds for the year 1912, the chief varieties being Sudan Conakry "niggers," Gambian, Labou "niggers" and Labou cakes. He states that the strict enforcement of recent administrative decrees has considerably improved the general quality of forest rubber, enabling it to compete on more equal terms with certain of the plantation varieties. Madagascar rubber, according to this report, was uniform in quality and was easy of sale. The price of Para ranged from $2.40 to $2.60 per kilo (2.2 pounds) in January, to $2.77 in August; plantation crepe which was quoted at $2.60 in January, went to $3.09 in March, dropped in October to $2.18 and closed in December at $2.50.

THE VALUE OF A PATENT ON GOLF BALLS.

The proprietor of English patent, No. 20,905, sued a firm selling golf balls, made according to this patented process. The courts upheld his suit and awarded him damages amounting to 32,500 francs ($6,176). The infringers had actually sold 20,000 dozen of the balls.

This success would not have been obtained but for the lucid and precise wording of the patent, the claims of which had been formulated with due regard to prior inventions.

There are in Belgium about 2,000 patents on sporting goods and in England more than 10,000 (as may be seen in the "Dictionnaire des Brevets," published by J. Gevers & Co., of Antwerp).

These patents being arranged in classes, sportsmen who invent an improvement would do well to investigate what has previously been patented, so as to be able to claim exactly the new points of their invention.

THE RUBBER TRADE IN JAPAN.

By Our Regular Correspondent.

ACCORDING to a translated official report of the financial department of the Japanese Government, the imports of crude rubber into Japan for the year 1912 amounted to 2,004,010 pounds, valued at $1,514,560, this being a decrease of 50,854 pounds, $15,449, from the imports of the preceding year. The following is a comparative table showing the quantity and value of the rubber imports for the two years and the countries from which these were drawn:

	1911		1912	
	Pounds	Value	Pounds	Value
China	.....	.....	267	$200
British India	121,160	$118,355	167,063	140,781
British Straits Settlements	1,223,071	691,651	1,214,485	820,891
Dutch India	132,173	80,703	124,904	73,171
French India.....	.....	.....	3,805	3,874
Great Britain	426,013	467,696	242,620	230,663
Germany	4,588	3,563	25,600	19,307
United States	112,170	126,363	158,176	160,556
Mexico	.....	.....	113	100
Other countries ..	35,689	41,678	66,977	65,014
	2,054,864	$1,530,009	2,004,010	$1,514,557

In spite of the above figures, the rubber industry has made great progress in Japan, and reports of crude rubber imports in the future will show large increases. For example, manufacturers of weatherproof insulated electric wire, started several years ago, have now assumed considerable importance. Jinrikisha tires, first manufactured in Japan at Tokio some years ago, are now made also by rubber concerns at Kobe and Osaka, who, by producing them in large quantities, are able to quote lower prices. In these two last named cities the rubber trade has steadily advanced, surpassing that of Tokio which was started some time earlier. The Kakuichi Rubber Co., of Osaka, as well as other works in that city, has arranged for production on a larger scale than heretofore, and the Osaka branch of the Yokohama Electric Wire Works has plans under way for the extension of its plant, while the Settsu Rubber Co., Limited (Nishinomiya, Kobe), The Taisho Rubber Manufacturing Co., Limited (Kobe), and many other companies have been established.

Of the crude rubber imports from Singapore during 1912, Borneo rubber comprised the greater part, with plantation Pará next in importance; while for 1911 the Singapore importations consisted of one-half Borneo, three-tenths plantation Pará (which constituted 30 per cent. of the total exports of that place for the year), and the remaining two-tenths from India. In the imports of crude rubber from Great Britain, Brazilian Para occupied first place, and of the various grades "hard fine" was received in greatest amount, with a small quantity of African. Imports from the United States and Germany were similar in proportion. From Dutch India the Borneo variety was first in importance, with jelutong next, and a small proportion of gutta percha. Manila and British India supplied principally Borneo rubber.

Crude rubber is imported generally through crude rubber merchants, the large manufacturers ordering in quantities as demanded by the immediate needs of their business, so that no stocks are carried in hand. The market has not shown any great fluctuations, the price per pound of plantation Pará in 1912 being 1.80—1.47 yen ($.90—$.74). The highest and lowest prices were as follows:

	April-May	Nov.-Dec.
Borneo rubber	1.27 yen ($.64)	1.14 yen ($.57)
India rubber	" " "	1.09 yen (.55)
Plantation Pará rubber..	1.95 yen (.98)	1.58 yen (.79)

The decrease in importations of crude rubber for 1912 was due largely to the general business depression which followed the death of the late Emperor. But the trade in one particular article of commerce which consumes large quantities of rubber was not seriously affected by this dullness—and that was the bicycle industry, this article having come to be regarded as no longer a luxury but an actual necessity. The 1912 imports of bicycles and their parts amounted to $1,558,118, exceeding those of the previous year by $58,758, tho the actual number of machines received during the year fell off 4,815. Under the old tariff schedule in force until July 13, 1911, bicycles were admitted into the country under an ad valorem duty, but the law enacted at that time places a specific duty on bicycles. Prices for the year ranged from 30-200 yen ($15-$100), those at 70-130 yen ($35-$65) being most in demand. A large number of bicycles are also constructed in this country, from parts imported; and these showed a falling off in price during 1912, due largely to increased competition. Among the domestic concerns engaged in the construction of these machines from imported parts is the Premier Cycle and Motor Car Co., Limited of Wakinohema, Kobe—under the same management as the Dunlop Rubber Co. (Far East), Limited, of that place.

An investigation has been made by the military department of the Japanese Government as to the number of automobiles and bicycles in Japan, and the official count shows, at the end of 1912, 426 of the former and 367,820 of the latter. The automobiles are most numerous in Tokio, Yokohama and Mie-Ken, but while these cities possess a fair share of the bicycles in this official count, other districts are credited with 259,775 of the total number. Mie-Ken is a district in which are situated our Imperial shrines, "Ge-Gu" and "Nai-Gu," worshipped by all Japanese, from the Emperor and Empress, the princes, princesses and other nobles, down to the lower classes; and the automobiles and bicycles are employed largely in conveying the Japanese people to worship at the shrines of their ancestors.

The Sanyo Rubber Co., Limited, was established by Messrs. M. Ido, K. Nakamura, T. Yamada, etc., in September, at Suma, Hyogo. Its capital is $17,500, one-fourth of which is already paid in. It will manufacture toy balloons, etc.

Mr. K. Kobayashi, who was editor-in-chief of the "Gomu Shimpo" from October, 1912, to September, 1913, left that post to become an officer of the Imperial Household Department.

FENDERS FOR AUTOMOBILES.

The Cuban legislature has recently passed a law making it compulsory upon automobiles used in that island to be equipped with a fender—which is quite different from the bumper sometimes used in this country. This fender looks like a pneumatic tire projecting in front of the machine. It serves a double purpose—it breaks the impact in case of a collision and thus helps to preserve the car; and, better than that, it is sufficiently low to act as a scoop when striking against a human being. While this fender has never been used in this country, it is the invention of an American; and in view of the fatalities attending the use of the automobile, chronicled regularly every morning in the news columns of the papers it would seem as if the time was about ripe for some such equipment on American cars.

Commerical Agent Ralph M. Odell, of the Department of Commerce, in a report on the development of Anglo-Egyptian Sudan, states that there are many good rubber trees in the southern part of the country, from which a good quality of rubber is obtained, and that a company is now preparing to extract it along modern lines.

RUBBER PLANTATIONS IN DUTCH GUIANA.

(Extract from Recent Correspondence.)

THE plantation "Niew Clarenbeek" changed owners early in the year. The lucky purchasers are members of an American firm with headquarters at Chicago. This property is very extensive, and all the trees are now ready for the tapping knife. Great returns are expected from this estate, and the new owners are to be congratulated for their foresight in selecting and acquiring such a modern rubber plantation. The manager of the corporation—the Dutch Guiana Culture Co.—visited the colony, and remained for several months on the estate, making all the necessary improvements and arrangements preliminary to starting operations. He returned to Chicago some weeks ago, and before his departure openly expressed his entire satisfaction with his company's investment and with the colony in general. Niew Clarenbeek is one of the best rubber estates in the colony and will be producing largely in the near future.

Several other plantations have been doing well also, and there is no doubt that in the course of a very short time the exports of rubber will compare favorably with other producing lands. Had the planters of Surinam, however, given more attention to cultivation of Pará rubber some 15 or 20 years ago, today Dutch Guiana would have stood high in exports and would have rivaled many of the large producing countries. As it is our rubber exports only began in 1911, and from that time to August 31 of the present year, according to government statistics, about 4,327 kilograms (9,519 pounds) have been exported. The present low prices of the product have also had a bad effect on this year's production, for many of the plantation proprietors have discontinued tapping operations pending a more lucrative price. This will materially lessen the exports—which were expected to be high—for 1913.

RUBBER VINES TO BE GROWN IN THE BAHAMAS.

A REPORT made by United States Consul Henry D. Baker, recently on special duty in India, states that an attempt is to be made to cultivate a rubber producing vine, *Cryptostegia grandi flora*, in the Bahamas on a large scale, thus realizing an idea, long entertained that these fertile islands could be made an important source of rubber.

The enterprise will be financed and managed, according to the report, by a syndicate having headquarters in Boston, Massachusetts, with a capital of $500,000; and a tract of upwards of 1,000 acres of land has been acquired near Nassau, N. P. The shoots, of which about 5,000 will be set out to the acre, are said to make rapid growth, attaining in six months a length of 12 to 30 feet. The vine will be cut at twelve months and each plant is expected to yield about 2 pounds of shrub, from which 2 per cent. of rubber can be extracted. This is equivalent to about 200 pounds of rubber to the acre.

In addition to rubber, the plant furnishes, as a by-product, a valuable fibre that can be spun and woven into an excellent fabric. The woody substance, when worked out, is said to yield a cellulose that can be profitably used in paper making.

The process of extracting the rubber is a destructive one, the plant being crushed or ground up after the manner of the sugar cane and the juice extracted treated by a secret process to obtain the rubber which the report describes as worth, in the London market, within 8 cents per pound of the price of the best quality Pará.

AMERICAN RUBBER ROOFING IN TRIPOLI.

Imports from America to Tripoli for 1912 amounted to $510,486 and included rubber roofing to the value of $2,000.

A RUBBER PLANTER LEAVES WEST AFRICA FOR SOUTH AMERICA.

AMONG the interesting rubber men from abroad who have recently visited New York is Mr. Lachlan A. Campbell, of London, who has spent the last ten years in the rubber country of West Africa, acting for the greater part of that time as manager of rubber planting enterprises. In his opinion, plantations in South America offer greater promise than those of West Africa, and he is planning to transfer his activities to the country along the Amazon.

Mr. Campbell speaks of the disadvantages under which the West African rubber trade is now being carried on, chiefly because of the fact that two-thirds of the *Landolphia* vines—which have been the principal source of African rubber—have been destroyed by the natives in their anxiety to get the utmost rubber in the briefest space of time. Rubber gathering in that section began 25 years ago, and up to quite recently the native process has been to girdle the vines with a deep incision and at frequent intervals, or in some cases—where the vines were small and susceptible of such treatment—to cut them off at the roots and crush them in a macerating machine; both processes being absolutely destructive to the vine. Mr. Campbell's operations have been chiefly confined to Southern Nigeria, near the Cross river; and in that section, and in fact through western Africa generally, the natives are now being taught a better system of tapping, which extracts the latex but does not destroy the vine. But the injury already done is irreparable.

Plantation enterprises in southern Nigeria have not as yet been very successful, but there are several plantations in the Gold Coast country—particularly in the vicinity of Axim—where some thousand acres have been planted to *Hevea*, which are quite promising. These *Hevea* experiments have been carried on during the last three years and seem to assure better results than the previous *Funtumia* experiments. Botanists have generally classified the *Funtumia elastica* as being the same as the *Kickxia Africana*, but Mr. Campbell thinks they are wrong in this matter and that tho closely related they are not the same tree. *Kickxia* is indigenous to West Africa, but, in his opinion, *Funtumia* is not a native of that country.

In addition to the great destruction of the *Landolphia* vine there is another reason for the falling off of wild rubber shipments from West Africa—and that is the fact that the natives find an easier method of livelihood in planting the cocoa tree, which can be planted with very little clearing, is easy to care for, and the pods of which are picked and dried with comparatively little work. A great many of them have abandoned rubber gathering and also the cultivation of the oil palms for the raising of cocoa trees.

Mr. Campbell believes that the Congo atrocities are absolutely a thing of the past, but he says there is no doubt that they existed under Leopold's administration and that the stories of horrible mutilations that came from that country at that time were in no way exaggerated.

OUR TRADE WITH MEXICO.

Of a total decrease of $9,488,236, in the foreign trade of Mexico for the year that ended June 30, 1912, $7,797,755 of this total represented the falling off in commerce between that country and the United States, divided between imports and exports in the amounts of $7,360,656 and $437,099, respectively. Mexico's total foreign trade for the year reached $240,325,720, the imports into the country amounting to $91,331,155, of which $49,212,836 worth were from the United States, $448,502 of that amount representing manufactures of rubber. The total value of the exports from that country for the year was $148,994,564, the United States taking $112,729,956 of these exports, of which $10,896,373 represented rubber, guayule and a small proportion of chicle.

Some Rubber Planting Notes.

THE BOTANIC GARDENS OF SINGAPORE AND PENANG.

IN the last annual report on the Botanic Gardens at Singapore and Penang—Straits Settlements—a paragraph devoted to "The Economical Garden," records the loss of Pará rubber trees by wind and states that the condition interfered also with tapping experiments, the total yield for the year 1912 having amounted to 2,484 pounds, a slight advance over that of 1911, but about 400 pounds short of the 1910 production. It contains also the information that the demand for seed and seedlings absorbed the entire available supply of the former and nearly the whole of the latter, 395,300 seeds and 9,550 seedlings having been distributed during the year, the revenue from their sale amounting to $3,456, and from the sale of rubber to $4,520. The Penang report mentions a yield of 13½ pounds for the year from a 27 year old Pará tree, this figure representing its maximum yearly yield to date. This tree has been tapped continually since 1895 and during that period has produced slightly over 85 pounds of dry rubber. Since publication of the previous report, Mr. I. H. Burkill has been appointed Director of Gardens, succeeding Mr. H. N. Ridley, under whose direction they were formerly conducted.

VALLAMBROSA RUBBER CO., LIMITED.

For the five months ending August 31, the amount of rubber harvested on Vallambrosa Estate was 184,000 pounds, compared with 174,300 pounds for the same period in 1912. On the Buki Kraiong Estate, the quantity harvested during the same period was 43,100 pounds, compared with 27,700 pounds for the same period last year.

PHENOMENAL INCREASE IN RUBBER EXPORTS.

During the first seven months of the current year, there was exported from the Federated Malay States, according to a report made by United States Consul General Edwin S. Cunningham, at Singapore, Straits Settlements, 12,265 tons of plantation rubber, compared with 8,071 tons during the same period in 1912. The value of this year's exports of rubber is given by the consul as $21,022,746, and it paid duty to the Federated Malay States amounting to $524,567.

SAPUMALKANDE RUBBER CO., LIMITED.

An interim dividend of 4 per cent., equivalent to 9½d. per share, has been declared by the directors of the above company for the year ending December 31, 1913.

GOLDEN HOPE RUBBER ESTATE, LIMITED.

The directors of the above company have declared an interim dividend of 7½ per cent., equivalent to 1s. 6d. per share for the year ending December 31, 1913.

THE FEDERATED MALAY STATES INSTALL DAVID BRIDGE MACHINERY.

The Department of Agriculture for the Federated Malay States recently ordered a complete experimental rubber vulcanizing plant from David Bridge & Co., Manchester, England. This plant when finished will constitute one of the most modern and best equipped laboratories for the testing of rubber in a thoroughly practical way anywhere in existence. It will be housed in a building erected specially for it and will include a vertical steam engine; a horizontal steam engine; an improved washing mill; an improved mixing mill; a three-bowl calender; a hydraulic vulcanizing press; an "Autoclave" press or combined hydraulic press and vulcanizing pan; a da Costa coagulator; a vacuum drying plant, a combined smoking and drying apparatus; Schopper, Schwartz and Martens machines for testing physical qualities of rubber, and a Breuil elastodurameter.

INCREASED RUBBER ACREAGE IN JAVA AND SUMATRA.

According to reports from British consular officials in that section, the acreage devoted to the cultivation of rubber in Java and Sumatra, as well as the output of that product, is steadily increasing. According to one report, the exports during 1912 were 100 per cent. larger than for the preceding year and consisted chiefly of *Ficus* and *Hevea* rubber, only small exports of *Castilloa* and Ceara being reported. The area planted to rubber at the end of 1912, as near as could be ascertained by the British vice-consul for the district of Medan, was 208,000 acres.

COFFEE VS. TEA AS A CATCH CROP WITH RUBBER.

While "rubber cum tea" has engaged to a large extent the attention of planters in Ceylon, in Sumatra it is "rubber cum coffee" that constitutes their favorite crop, and, already concerned at the encroachment by Far Eastern planters on their rubber business, planters in Brazil are now beginning to recognize in the Far East a possible rival in the coffee market. The fact that in the Dutch East Indies, in Sumatra particularly, rubber planters were reported as finding large profits in the cultivation of "Robusta" coffee, as a catch crop with rubber, induced the government of the Brazilian province of Sao Paulo to dispatch a commissioner to the East, for the purpose of learning how much truth there was in the statement. Dr. Navarro, the envoy in question, has recently returned from his mission and his report is calculated to give comfort alike to coffee and rubber growers.

It appears that the growing of coffee, as a catch crop with rubber, has not proved profitable, the coffee developing at the expense of the rubber; and its culture has consequently been in large part abandoned, especially by English-owned plantations. The extent to which the Dutch planters in Sumatra have taken up coffee growing may be gathered from the fact that the Brazilian commissioner visited one plantation on which there were 180,000 rubber trees and 1,159,000 coffee plants; another had 68,820 rubber trees and 547,000 coffee plants. In every instance the "Robusta" was the variety of coffee favored.

A steady falling off, for several years, in the volume of coffee shipped, would indicate that the coffee plants were being gradually eliminated by Dutch East India growers, who are returning to the production of rubber exclusively as a commodity more stable alike in demand and in price.

REDUCED SHIPMENTS OF PARA RUBBER.

That the effects of the present low prices of rubber are making themselves felt in producing circles is indicated by a recent report made by George H. Pickerell, United States Consul at Pará, on the decline in Brazilian rubber shipments. The consul embodies in his report a table showing the shipments of rubber to the United States from the ports of Pará, Manáos, Iquitos and Itacoatira during July, 1913, the first month of the 1913-1914 rubber season, to have been 4,189,454 pounds, as compared with 5,627,602 pounds for the corresponding month of 1912. According to the consul, the falling off is due to a refusal on the part of many producers to send down their supplies, because at current quotations their receipts would not cover the advances made to the workers during the season. This confirms a statement made in connection with the review of the crude rubber market in the October issue of this paper.

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Country of the Amazon; Rubber Trade Directory of the World.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED SEPTEMBER 2, 1913.

NO. 1,071,695. Tire protector. J. Brotschneider, San Francisco, Cal.
1,071,726. Garter. F. A. Freeman, Overbrook, assignor to Pioneer Suspender Co., of Pennsylvania.
1,071,741. Tire armor. G. E. Hinson, Atlanta, Ga.
1,071,880. Combined tire pressure indicator and signal. C. C. Cleveland, Boulder, Colo.
1,071,953. Wheel tire. A. A. Picard, New York.
1,071,998. Massage device. J. E. Gibbs, Covington, Ky.
1,072,128. Apparel corset. D. Kops, New York.
1,072,253. Hose mending device. J. E. Peck, Logan, W. Va.
1,072,260. Resilient tire. F. Reed, Omaha, Neb.
1,072,321. Head protector for babies. B. G. Fitch, Philadelphia, Pa.
1,072,348. Vehicle wheel. W. D. Morris, assignor to The Republic Rubber Co.—both of Youngstown, Ohio.
1,072,381. Skirt. J. Greenwald, assignor to Greenwald Bros., Inc.—both of Philadelphia, Pa.
1,072,382. Tire. C. M. Griffin, Indianapolis, Ind., assignor to C. M. Griffin and H. G. Crawford, a copartnership.

Trade Marks.

63,751. Vacumit-Gesellschaft M. b. H. Vienna XIV, Austria. The word *Vacumit*. Elastic wheel tires.
66,740. C. P. Chisholm, Oakville, Ontario, Canada. The word *Spirox*. Rubber preservatives.
69,800. N. H. Moore, Omaha, Neb. The word *Menzalone*. A liquid preparation for treating pneumatic tires.
70,132. P. A. Gould, Gibsonburg, Ohio. Diamond shape trade mark with name thereon. Natural gum facing dental rubber.
70,391. J. W. Buckley Rubber Co., New York. X within a circle. Rubber tubing, hose, etc.
71,149. The B. F. Goodrich Co., New York, and Akron, Ohio. The word *Titan*. Hard rubber battery jars.
71,481. Hanover Vulcanite Co., New York. The words *Bull Moose* with illustration of animal's head between. Hard rubber combs, etc.
71,664. Sidney Suspender Co., Providence, R. I. The word *Sidd*. Belts, suspenders, etc.
71,955. Morgan & Wright, Detroit, Mich. The word *Nobby*. Rubber vehicle tires.

ISSUED SEPTEMBER 9, 1913.

1,072,464. Tire protector. S. S. Huffman and D. A. Huffman, Youngstown, Ohio.
1,072,467. Syringe. O. James, Fall River, Mass.
1,072,514. Dirigible balloon. J. Schutte, Danzig, Germany.
1,072,579. Antiskidding device for vehicle tires. C. W. Cramer, Scranton, Pa.
1,072,597. Vehicle wheel. G. J. Garrett and H. C. Garrett, Richmond, Ind.
1,072,605. Resilient vehicle wheel. H. S. Grace, San Francisco, Cal.
1,072,607. Pneumatic cleaning implement. S. L. Guthorn, assignor to Vacuum Engineering Co., New York.
1,072,699. Resilient vehicle tire. J. T. Clark, Provo, Utah.
1,072,700. Resilient vehicle tire. J. T. Clark, Provo, Utah.
1,072,705. Apparatus for impregnating and coating materials. L. D. Destribats, Trenton, N. J.
1,072,793. Tire for the wheels of road vehicles. A. W. Torkington, London, England.
1,072,872. Hose supporter. A. Rockowitz, New York.
1,072,907. Automobile tire inflating mechanism. L. L. Brooks, Falls City, Ohio.
1,072,909. Tire support. L. E. Cadwell, New York.
1,072,925. Tire. O. Dimmitt, Green Castle, Mo.
1,072,979. Vehicle wheel. F. O'Neill, Toledo, Ohio.
1,072,988. Toy catapult. F. W. Pratt, Ambridge, and B. J. Dickinson, Fair Oaks, Pa.
1,073,040. Vehicle wheel. J. Guerrero, Paris, France.
1,073,049. Vehicle wheel. C. G. Johanson, Dorchester, Mass., assignor to Jennie W. Gooding, Providence, R. I.

Design.

44,640. Tire. J. E. Lee, Conshohocken, Pa.

Trade Marks.

70,497. L. A. Subers, Cleveland, Ohio. The word *Subers*. Hose pipes, inner tubes, etc.
71,594. J. W. Buckley Rubber Co., New York. The word *Dumol*. Rubber hose, packing, etc.
71,696. Tower Mfg. & Novelty Co., New York. The word *Pearl*. Rubber bands.

ISSUED SEPTEMBER 16, 1913.

1,073,111. Toy. E. J. Fraenkell, New York.
1,073,116. Caoutchouc substance and process of making same. C. Harries, Kiel, Germany.
1,073,118. Tire protector. R. V. Hastings, Chicago, Ill.
1,073,152. Fire hose rack. W. McClintock, New York.
1,073,177. Pneumatic wheel. S. W. Scott, Troy, N. Y.
1,073,249. Vaginal syringe. I. W. Kurtz and J. W. Rankin, Peru, Ind.
1,073,329. Tire or tube for wheeled vehicles. O. T. Bugg, Hoboken, N. J.
1,073,368. Spring wheel. E. D. Smith, Elizabeth, N. J.
1,073,446. Antiskidding device for vehicle wheels. W. H. Snyder, Ashbourne, Pa.
1,073,498. Elastic wheel. K. Koszegi, Baja, Austria-Hungary.
1,073,506. Demountable rim. A. McPherson, Beaumont, Tex.
1,073,508. Shock absorbing wheel for vehicles. C. E. Moser, Boulogne-sur-Seine, France.
1,073,527. Substitute for rubber. J. B. Scammell, assignor to Rubber Substitute (1910), Ltd.—both of London, England.
1,073,533. Hose clamp. M. W. Shipp, Wilkes-Barre, Pa.

Trade Marks.

57,721. Atlantic Insulated Wire & Cable Co., Jersey City, N. J., and Stamford, Conn. The words *Neptune* and *Atlantic* in black rimmed circle. Insulated wire.

ISSUED SEPTEMBER 23, 1913.

1,073,850. Hose coupling. G. T. Freer, Roanoke, Va.
1,073,858. Reinforcing seams of waterproof garments. S. Kaufman, Philadelphia, Pa.
1,073,963. Nozzle. J. H. Vottle, New York.
1,073,993. Drawing roll. E. Kempshall, New York, assignor to Kempshall Supply Co., of Jersey City.
1,074,031. Airship. I. Allen, Dansville, N. Y.
1,074,064. Resilient wheel. J. Pronovost and H. S. Miller, Helena, Mont.
1,074,079. Automobile tire trunk. A. Zieve and H. Davidovitz, New York.

Trade Marks.

61,886. Felten & Guilleaume Carlswerk Actien-Gesellschaft, Mulheim-on-the-Rhine, Germany. The word *Neptune*. Tires composed of india-rubber, gutta-percha, etc.
61,888. Felten & Guilleaume Carlswerk Actien-Gesellschaft, Mulheim-on-the-Rhine, Germany. The word *Neptune*. India-rubber, gutta-percha, balata, etc.
70,396. J. W. Buckley Rubber Co., New York. The initial *B* in star. Rubber tubing, hose, etc.
71,004. The Mechanical Rubber Co., Jersey City, N. J., New York, and Cleveland, Ohio. The word *Corker*. Hose compounded of rubber and rubber combined with fabric.
71,040. J. W. Buckley Rubber Co., New York. The word *Octo*. Rubber hose, packing, jar rings, etc.
71,374. J. W. Buckley Rubber Co., New York. The word *Rud*. Rubber hose, packing, jar rings, etc.
72,069. J. M. Munyon, Jr., New York. The word *Lasto*. A preservation of rubber products.

ISSUED SEPTEMBER 30, 1913.

1,074,147. Supporter. W. B. Whitlock, Richmond, Va.
1,074,206. Milking apparatus. G. V. Roberts, Jr., Port Byron, N. Y.
1,074,235. Spring wheel. R. C. Behrends, Easton, Ill.
1,074,246. Vehicle tire. J. T. Clark, Provo, Utah.
1,074,269. Water bottle or bag. I. F. Kepler, assignor to The B. F. Goodrich Co.—both of Akron, Ohio.
1,074,290. Spring wheel. S. J. Poyner, Pierson, Manitoba, Canada.
1,074,432. Caoutchouc substance. F. Hofmann, C. Coutelle, K. Meisenburg, and K. Delbruck, assignors to Farbenfabriken vorm. Friedr. Bayer & Co.—all of Elberfeld, Germany.
1,074,498. Garter, F. G. Eiker, Washington, D. C.

Trade Marks.

70,045. J. A. Posey, Waxahachie, Tex. Red star in circle through line. A puncture proof composition.
71,318. J. H. Meyer & Co., New York. Illustration of duckling on turtle's back in spotted circle. Waterproof fabrics.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1912.
*Denotes Patents for American Inventions.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, SEPTEMBER 3, 1913.]

11,006 (1912). Air tubes and chambers for tires. J. Hayworth, Ivydene, Manchester Road, West Houghton, Bolton.
11,093 (1912). Mud guards for motor and other vehicles. F. E. Cooper and A. J. Cooper, 47 Featherstone street, London.
11,233 (1912). Apparatus for detecting and closing punctures in tires. E. W. A. Martin, 98 Herbert Road, Plumstead, London.
11,266 (1912). Rubber pad for preventing rattling of doors, windows, etc. A. G. Spencer, 77 Cannon street, London.
11,274 (1912). Treating india-rubber. S. C. Davidson, Sirocco Engineering Works, Belfast, Ireland.
11,310 (1912). Means of attaching tires to rims. J. Garbutt, Skelton, near York.
11,406 (1912). Insulating composition. F. B. Ellis, E. Reeve and J. P. O'Neill, 28 Piccadilly street, Tunstall, Stoke-on-Trent.
11,470 (1912). Coagulating latex. S. C. Davidson, Sirocco Engineering Works, Belfast, Ireland.

11,499 (1912). Belts and bands. C. H. Gray, India Rubber, Gutta Percha, etc., Rubber Works Co., Silvertown, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, SEPTEMBER 10, 1913.]

11,694 (1912). Solid elastic tire for spring wheels. G. H. Robinson, 144 Queens Road, Bayswater, London.

11,743 (1912). Balloon fabrics, etc. B. D. Porritt, and North British Rubber Co., Castle Mills, Fountain Bridge, Edinburgh, Scotland.

11,793 (1912). Spring wheels with resilient suspension ring. J. B. T. C. Couinaud, 45 Rue Travérsiere, Bordeaux, France.

*11,914 (1912). Apparatus for aerating liquids. A. L. Koenig and H. Stahl, 715 Van Ness avenue, San Francisco, Cal., U. S. A.

12,020 (1912). Tire inflating apparatus. M. Solomon, 58 Finsbury Pavement, London.

*12,031 (1912). Jackets and covers for wheel tires. C. M. Wills, Empire Building, Seattle, Wash., U. S. A.

12,054 (1912). Rubber heel pad. G. Evans, 117 Carlton street, Toronto, Canada.

12,088 (1912). Resilient tread for boots. C. Lee, 8 Thursfield Road, Burnley, Lancashire.

12,157 (1912). Mud guards for vehicle wheels. C. Lean, 231 Strand, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, SEPTEMBER 17, 1913.]

12,187 (1912). Taps for valves. J. Clayton, 7 Victoria avenue, and R. Taylor, Adelphi Hotel, Church street, Blackpool, Lancashire.

12,268 (1912). Tires with rims enclosing air tubes or chambers. C. H. Everson, 231 South Park Road, Wimbledon, London.

*12,274 (1912). Molding wheel tires. N. W. McLeod, 207 N. 8th street, St. Louis, Mo., U. S. A.

12,323 (1912). Elastic suspenders for socks, etc. D. D. Walker, "The Haven," Brightwell avenue, Westcliff-on-Sea, Essex.

12,350 (1912). Tire valves. W. Loebinger, 133 Grosvenor Road, Highbury, London.

*12,384 (1912). Pneumatic boot tree, etc. C. A. Bowron, 18 E. 65th street, New York, U. S. A.

12,423 (1912). Wheel tires. T. H. Rushton, 158 Grimsby Road, New Cleethorpes, Grimsby.

12,504 (1912). Tobacco pouches. J. Rothwell, Ivy Cottage, Kirklees, Tottington, near Bury, Lancashire.

*12,543 (1912). Vulcanizing tires. N. A. Dees, 3127 Locust street, and N. W. McLeod, 207 North Eighth street, St. Louis, Mo., U. S. A.

12,557 (1912). Wheel tires. A. Hobson, Roseleigh, North Park Road, Roundhay, near Leeds.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, SEPTEMBER 24, 1913.]

12,747 (1912). Wheel tires. H. Zeumer, 125 Kaiserstrasse, Karlsruhe, Bavaria.

12,773 (1912). Caoutchouc substances. F. E. Matthews and E. H. Strange, 7 Staple Inn, and H. J. W. Bliss, Ingram House, Stockwell, London.

*12,792 (1912). Tire filling compositions. H. I. Manley, 2221 Troost avenue, Kansas City, Mo., U. S. A.

*13,013 (1912). Wheel tires. A. D. Laurent, Westfield, N. J., U. S. A.

*13,116 (1912). Woven fabrics. W. Kops, 16th street, New York, U. S. A.

13,181 (1912). Vehicle wheels. E. Aimond, Rue Chaptal, Paris.

*13,211 (1912). Vehicle wheels. C. H. Schwarz, 3514 North Broad street, Philadelphia, Pa., U. S. A.

13,236 (1912). Wheel tires. J. F. F. W. Ure, 13 Trinity Gardens, Folkestone, Kent.

13,266 (1912). Wheel tires. F. Lamplough, 53 A Pall Mall, London, and W. F. L. F. Lowndes, The Bury, Chesham, Buckinghamshire.

13,287 (1912). Nonconducting covering. A. J. Roach-Cuming, 21 Cowcross street, London.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

454,928 (March 1, 1913). Improvements in wheels for carriages and tires intended for them. F. W. Ofeldt.

454,954 (March 1). Improvements in tires of elastic material, such as *pneumousse*, solid air, etc. R. Rousselon.

454,905 (February 28). Improvements in the manufacture of elastic substances. Company known as Gummi Foreign, Ltd.

454,910 (May 7, 1912). Shoemakers' last in rubber or elastic material. Laufrey & Bernard.

455,034 (March 4, 1913). Improvements in elastic tires. A. K. Lowell.

455,061 (May 11, 1912). Elastic nonpneumatic tire for wheels of automobile or other vehicles. Madamoiselle Fontenoy.

455,142 (May 14). Improvement in revolving heels of rubber for shoes Bovel & Grange Co.

455,259 (March 7, 1913). Elastic tires. P. F. Gelez.

455,287 (March 8). New arrangement of mud guards for wheels of automobiles and other vehicles. A. F. C. Granger.

455,236 (March 7). Shoe, bootlet or slipper in elastic rubber. A. Brandt.

455,322 (March 8). Improvement in elastic tires for vehicle wheels. F. Lamplough.

455,410 (March 11). Stamped buttons for rubber suction discs for dental plates. A. Pochwadt.

455,434 (May 23, 1912). Soles and tips of rubber, leather and steel combined, for shoes. "Société Française du Cuir Armeé."

455,513 (March 13, 1913). Pneumatic tire with interior ducts for cooling. G. A. J. Dessons.

455,541 (March 14). Sectional pneumatic tire for wheels of vehicles. P. Larouze.

455,654 (May 29, 1912). Tire for vehicle wheels. J. Clerget.

455,701 (March 19, 1913). Protector for air tubes of pneumatic tires for bicycles, motorcycles and automobiles. C. E. Emdé.

455,937 (March 13). Vulcanizing apparatus. L. Schuller.

455,938 (March 13). Antiskidding pneumatic tire. B. W. Wittenberg.

456,050 (March 27). Process and machine for refilling wheel tires. E. Oliver.

456,104 (March 29). Process of autogenous joining of caoutchouc and resulting applications. A. Pidoux and P. de Carsalade.

456,146 (March 20). Composition for repairing articles of rubber or rubber compositions. F. Estevè-Anglada.

456,245 (April 2). Mud scraper for vehicle wheels. E. J. C. Peloux.

456,292 (April 3). Improvements in rods for elastic tires. R. Rousselon.

456,273 (April 3). Arrangement for preventing the skidding of rubber wheel tires. G. Savini and P. Poggioli.

456,326 (April 4). Pneumatic shoe for vehicle wheels. P. Arnault and M. Arnault.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Bobet, Ingenieur-Conseil, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

THE GERMAN EMPIRE.

PATENTS ISSUED (with Dates of Validity).

263,624, Class 30e (Dec. 21, 1912). Bed pan, with yielding, close fitting edges. Dr. H. Guthmann, Schlettstad, Alsace.

263,628, Class 30k (July 13). Syringe for subcutaneous injections, with compressible tube as fluid container. Dr. James T. Greeley, Nashua, N. H., U. S. A.

263,827, Class 71a (Feb. 5, 1913). Reinforcement of rubber or similar material, for heels of shoes. Gustav Kottke, Berlin, and Richard Kottke, Berlin-Pankow.

263,943, Class 41a (Feb. 18). Arrangement for pressing hats in forms, by compressed air, using an inflated pressing bag of rubber. Barbaro Jerez Diaz, Madrid.

264,007, Class 12 (Sept. 30, 1910). Process for the production of isoprene. Badischer Anilin & Soda Fabrik, Ludwigshafen a. Rhein.

264,123, Class 39b (Jan. 10, 1912). Process for the production of rubber and rubber-like substances. Dr. Ivan Ostromislensky and Gesellschaft für Fabrikation und Vertrieb von Gummiwaren "Bogatyr," Moscow.

264,451, Class 63e (Dec. 17). Pneumatic tire for motor vehicles and the like. William Edgar Muntz, London.

264,452, Class 63e (Sept. 21). Antiskid device for solid and pneumatic rubber tires. Joseph Sternegger, Rablstrasse, 39, Munich, Bavaria.

264,454, Class 63e (Feb. 1, 1913). Tread for pneumatic tires. Deutsche Dunlop Gummi Compagnie, A. G., Hanau on the Main.

264,739, Class 63d (July 27, 1912). Attachment of pneumatic tires to wooden felloes. Rudolf Rüdiger, Berlin-Steglitz, Düppelstr. 11, and Fritz Edenfeld, Berlin, Ritterstr. 31.

264,820, Class 39b (Jan. 10). Process for preventing stickiness or hardening of rubber-like substances, produced by the polymerization of butadien and homologous and analagous substances, with the exception of isoprene. Farbenfabriken, formerly Fried. Bayer & Co., Leverkusen, near Cologne and Elberfeld.

264,862, Class 63e (March 17). Air tube, with corrugated wall for pneumatic tires. John Henry Messenger, London.

264,863, Class 63e (July 7, 1910). Hollow rubber tire. Max Cyrus Obermann, New York.

264,923, Class 120 (Aug. 15, 1911). Process for producing isoprene. Supplementary to patent 257,640. Dr. Hermann Staüdinger, Karlsruhe.

264,959, Class 39b (July 21, 1912). Process for the production of rubber and homologous and analogous substances. Farbenfabriken, formerly Friedr. Bayer & Co., Leverkusen, near Cologne and Elberfeld.

265,011, Class 63e (Jan. 14, 1912). Automobile tire with a woven inlay of tangentially laid up bundles of threads. Paul Regnier, Coux, Ardeche, France.

265,221, Class 39b (Nov. 16). Process for accelerating the vulcanization of natural or artificial rubber varieties. Farbenfabriken, formerly Fried. Bayer & Co., Leverkusen, near Cologne and Elberfeld.

265,325, Class 39b (Aug. 3). Process for the improvement of rubber-like substances obtained by the polymerization of butadien and homologous substances.

265,447, Class 39a (April 26). Process of vulcanizing the inner rubber lining of hose and other hollow bodies. Felten & Guilleaume, Carlswerk Akt.-Ges. Mülheim on the Rhine.

265,551, Class 39a (May 21, 1911). Coating for attaching rubber to metals. Electro-Chemical Rubber and Manufacturing Co., New Jersey.

265,740, Class 39a (Oct. 15, 1912). Process for the production of a firm holding coating of rubber on objects of iron or steel. F. O. Estermann, Rottweil, Württemberg.

265,875, Class 63e (Jan. 16, 1913). Process and arrangement for the production of treads for pneumatic tires, with fibrous inlay. Fa Brevetti Saracco, Turin, Italy.

265,923, Class 39b (Feb. 29, 1912). Process for the production of formable masses from melted rubber wastes. The Bourne Rubber Co., Ltd., London.

265,969, Class 30e (April 9, 1913). Air cushion with filling arrangement. Dr. Fritz Vajda, Berlin, Marienstr. 23.

THE KINGDOM OF BELGIUM.

PATENTS PUBLISHED.

257,557 (August 3, 1913). Process and apparatus for the manufacture of a solid rubber tire for the wheels of automobiles. A. Witzel and F. Federer. Ludwigsburg and Stuttgart, Germany.

257,606 (August 3, 1913). Process of producing érythrène, its homologues and derivatives. Farbenfabriken, formerly Friedr. Bayer & Co., Elberfeld, Germany.

258,208 (August 14, 1913). Process for regenerating rubber. E. Zappert, 27 Chancery Lane, London, W. C.

258,014 (August 14, 1913). Process of producing substances resembling rubber. Farbenfabriken, formerly Fried. Bayer & Co., Elberfeld, Germany.

258,104 (August 14, 1913). New arrangement of inking pad box for rubber stamps. Société anonyme des Anciens Etablissements, P. Witlam & Co., Clichy-le-Garonne, France.

257,999 (August 14, 1913). Process for the manufacture of pinacene, by separation from acetone. Société for the production and sale of rubber articles, Moscow, Russia.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of india-rubber and gutta-percha from the United States for the months of July and August, 1913, and for the first eight months of five calendar years:

MONTHS.	Belting, Packing and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
July, 1913	$233,401	$106,403	$715,438	$1,055,242
August, 1913	214,788	156,705	715,736	1,087,229
January-June	1,232,254	592,942	4,434,641	6,259,837
Total, 1913	$1,680,443	$856,050	$5,865,815	$8,402,308
Total, 1912	1,650,887	850,879	5,356,274	7,858,040
Total, 1911	1,482,052	1,175,597	4,815,708	7,473,357
Total, 1910	1,431,382	1,347,749	3,798,848	6,577,979
Total, 1909	1,164,699	872,074	2,678,534	4,715,307

The above heading, "All Other Rubber," for the months of July and August, 1913, and the first eight months of the three calendar years, includes the following details relating to Tires:

MONTHS.	For Automobiles.	All Other.	TOTAL.
July, 1913	$379,273	$49,878	$429,151
August, 1913	377,031	42,531	419,562
January-June	2,165,896	295,106	2,461,002
Total, 1913	$2,922,200	$387,515	$3,309,715
Total, 1912	2,240,826	393,441	2,634,267
Total, 1911	1,715,322	395,745	2,111,067

STATEMENT OF THE INDIA RUBBER WORLD.

Statement of the ownership, management, circulation, etc., of THE INDIA RUBBER WORLD, published monthly at New York, N. Y., required by the Act of August 24, 1912.

Editor, Henry C. Pearson, Tompkins Corners, Putnam Co., New York.

Managing editor, John P. Lyons, 201 West 105th street, New York.

Business manager, E. MacPhee, 344 West Forty-eighth street, New York.

Publishers, The India Rubber Publishing Co., 15 West Thirty-eighth street, New York.

Owner, Henry C. Pearson, Tompkins Corners, Putnam Co., New York.

Known bondholders, mortgagees, and other security holders, holding 1 per cent. or more of total amount of bonds, mortgages, or other securities: None.

(Signed) E. MACPHEE, Business Manager.

Sworn and subscribed before me this 24th day of September, 1913 (Signed) HELEN HEROLD, Notary Public,

(Seal) New York County No. 1723.

New York County register 5202. Certificate filed in Kings County Register's office No. 6679. (Term expires March 30, 1915.)

RUBBER AT THE ELECTRICAL SHOW.

THE indispensability of rubber in some industries was strikingly demonstrated at the Electrical Exposition and Motor Show, held from October 15 to 25 at the Grand Central Palace, New York.

In nearly every exhibit success was dependent on perfect electrical insulation; and this, in almost every instance, was based on the use of rubber, so that while the substance was only conspicuously in evidence in a few cases, its importance was revealed by even a perfunctory inspection of the many ingenious contrivances shown.

Particularly dependent on rubber for its efficiency was the De Laval mechanical milker, made by The De Laval Separator Co., New York, and shown in operation at frequent intervals, thanks to the co-operation of a herd of beautiful Ayrshires. The device that held the cow's teats and replaced the hands of the human milker was of rubber, as was also the tubing that connected the milker with the cushion apparatus and that by which the milk was delivered into the pail.

As serving to emphasize the versatility of rubber, there was also an exceedingly compact sending and receiving outfit for a field system of wireless telegraphy in the interesting exhibit of the Signal Corps of the United States Army. Contained in a receptacle resembling in size and exterior appearance a small dress-suit case, it was not only complete and admirably executed from a mechanical point of view, but it formed a practical illustration of the value in such an apparatus of hard rubber as an insulating material and the skill with which it is utilized for this purpose.

The well equipped hospital, supplied with all the paraphernalia for surgical work, the making of radiographs and the hygienic care of patients, was a rubber triumph. In every transformation to which it is subjected by the manufacturers' treatment, uses had been found for rubber, and modern surgery seemed to owe no small share of its marvelous success to the intelligent adaptation of rubber to the wants alike of surgeon, patient and attendant.

The National Bureau of Standards, a branch of the Department of Commerce and Labor at Washington, which makes scientific tests of the tensile strength of rubber, rubber goods and fabrics entering into them, of the elasticity, resiliency, chemical properties and electric insulating efficiency of rubber, was also represented.

A full sized working model of the "fighting bridge" of a battleship was the contribution of the navy to the exposition; and the importance of India rubber as an insulating material for the delicate electrical apparatus installed on these great masses of steel possessed particular interest, even for the non-technical observer.

The electric motor vehicle was given a prominent place. Besides a demonstration track, a fireproof model garage was set up on the third floor of the building. It was fully equipped with electrical vacuum cleaners, tire pumps, car washing machines, battery charging boards and rectifiers, including a battery room and repair shop fitted out with the latest electrical appliances. In nearly all of these rubber plays an indispensable part, for where it is used no material has yet been found to take its place.

SAND AS AN ANTI-SKID.

A company has recently been formed in Detroit, Michigan, which has as its object the promotion of the sale of a device which will prevent automobiles from skidding, this result being attained by sprinkling sand on the rear wheels. The company is known as The Auto Sand Grip Co., and the officers are: J. F. Williams, president; P. G. Sanderson, vice-president; C. B. Shotwell, secretary and treasurer.

Report of the Crude Rubber Market.

WITHIN the last month, fine Pará in the London market has commenced to follow the downward movement which has been the prominent feature of plantation grades during the greater part of the year, while the fall in the latter still continues.

Continuing to the present date the table of this year's comparative London prices of Pará and plantation rubber the following results are obtained:

1913.	Upriver Fine Pará.	Plantation.	Difference.
April 26	3s. 4½d.	3s. 2½d.	2 d.
May 26	3s. 8½d.	3s. 2½d.	6 d.
June 25	3s. 8¾d.	2s. 11 d.	9¾d.
July 26	3s. 7 d.	2s. 9½d.	9½d.
August 27	3s. 9½d.	2s. 8 d.	1s. 1½d.
September 25	3s. 7½d.	2s. 4 d.	1s. 3½d.
September 27	3s. 7½d.	2s. 3½d.	1s. 4 d.
October 4	3s. 4 d.	2s. 1¼d.	1s. 2¾d.
October 11	3s. 5 d.	2s. 1¼d.	1s. 3¼d.
October 18	3s. 2½d.	2s. 1 d.	1s. 1½d.
October 27	3s. 1½d.	2s. 2 d.	11½d.

Starting at the end of April on the basis of 3s. 4½d. fine Pará on August 27 reached 3s. 9½d.; receding to 3s. 2½d. by the end of October.

Plantation first latex, which stood in April at 3s. 2½d., has since persistently dropped, reaching on October 27 the price of 2s. 2d. These two standards have thus within the last six months fallen respectively about 8 per cent. and 30 per cent. These figures illustrate the extent to which plantation owners have been meeting the views of buyers.

It was found impossible to repeat some purchases of plantation rubber in the London market on the basis of about 50c., which had been accepted for quantities of a certain importance early in the month.

When the market for plantation rubber gets to 50c. for first latex pale crepe, important consuming interests are prepared for new operations.

Manufacturers have only been purchasing for their immediate requirements, tho an impression has prevailed in some quarters that the market has now reached its lowest point.

A favorable symptom of the London market is that the September deliveries of plantation rubber (2,755 tons) nearly absorb the arrivals during that period of 2,910 tons; comparing very favorably with the figure of September, 1912, which amounted to 1,112 tons.

At the London auction of October 7, about 850 tons of plantation rubber were offered, of which some 400 tons were sold at an advance of about ¼d. per pound on the previous sale.

The sale of October 23 included about 1,200 tons plantation rubber, which sold well, and advanced ½d. on most grades.

A plan has been introduced with the object of raising the price of plantation rubber by a committee representing the industry, fixing each week the minimum prices at which the rubber of the combined companies will be offered during the week. The opinion has, however, been expressed that plantation rubber is produced on too large a scale to permit of any manipulation of supplies.

Of the 575 tons offered at Antwerp, September 23, only about 40 per cent was sold. The average fall was from 5 to 10 per cent. On October 22, 42 tons of Congo and 120 tons of Plantation were offered for sale.

The Rotterdam rubber sale of October 27, included about 35 tons *Hevea* and 11 tons *Ficus*. Competition was good, so that the bulk of the quantity was readily disposed of. Prices were in proportion to London quotations.

At the Amsterdam sale of October 16, the holders had decided to meet the market and as the result about three-quarters of the quantity offered was sold.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York one year ago, one month ago, and October 30—the current date:

PARA.	Nov. 1,'12.	Oct. 1,'13.	Oct. 30,'13.
Islands, fine, new	99@100	71@72	66@67
Islands, fine, old	.....	.....	.....
Upriver, fine, new	105@106	80@82	73@74
Upriver, fine, old	.....	85@86	76@80
Islands, coarse, new	54@ 55	29@30	28@29
Islands, coarse, old	.....	.....	.....
Upriver, coarse, new	83@ 84	48@49	46@47
Upriver, coarse, old	.....	.....	.....
Cametà	55@ 56	36@37	36@37
Caucho (Peruvian) ball	82@ 83	48@49	43@44
Caucho (Peruvian) sheet	.....	.....	.....
PLANTATION CEYLONS.			
Fine smoked sheet	108@109	60@61	59@60
Fine pale crepe	102@103	52@54	53@54
Fine sheets and biscuits	100@101	51@53	51@52
CENTRALS.			
Emeralda, sausage	77@ 78	40@42	40@41
Guayaquil, strip	.....	.....	.....
Nicaragua, scrap	77@ 78	40@41	37@39
Panama	.....	.....	.....
Mexican plantation, sheet	.....	.....	.....
Mexican, scrap	76@ 77	40@42	37@38
Mexican, slab	.....	.....	.....
Mangabeira, sheet	.....	.....	.....
Guayule	57@ 58	.....	.....
Balata, sheet	.....	66@67	63@64
Balata, block	.....	45@46	44@45
AFRICAN.			
Lopori, ball, prime	96@ 97	50@..	47@48
Lopori, strip, prime	.....	.....	.....
Aruwimi	87@ 88	40@42	37@38
Upper Congo, ball red	.....	45@46	45@46
Ikelemba	.....	.....	.....
Sierra Leone, 1st quality	.....	45@46	45@46
Massai, red	95@ 96	.....	.....
Soudan Niggers	.....	.....	.....
Cameroon, ball	.....	35@40	33@40
Benguela	.....	.....	.....
Madagascar, pinky	.....	.....	.....
Accra, flake	25@ 26	.....	20@22
EAST INDIAN.			
Assam	.....	.....	.....
Pontianak	6⅝@..	6@6¼	6@6¼
Borneo	.....	.....	.....

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows: "During October the conditions regarding commercial paper in the rubber line have been about the same as in September, the demand continuing rather light and at full rates, 5¾@6 per cent. for the best rubber names and 6¼@6½ per cent. for those not so well known."

NEW YORK PRICES FOR SEPTEMBER (NEW RUBBER).

	1913.	1912.	1911.
Upriver, fine	$0.80@0.90	$1.10@1.22	$1.13@1.20
Upriver, coarse	.48@ .52	.87@ .95	.94@ .99
Islands, fine	.71@ .77	1.07@1.13	1.06@1.12
Islands, coarse	.28@ .31	.55@ .59	.62@ .64
Cametá	.36@ .39	.61@ .67	.66@ .68

Statistics Para India Rubber (in Tons) Including Caucho.

STATISTICS FOR THE MONTH OF SEPTEMBER.

	Pará.	Caucho.	1913. Tons.		1912. Tons.	1911. Tons.	1910. Tons.
Receipts at Pará	2,440	440 =	2,880	against	2,620	2,640	1,980
Shipments to Liverpool	850	160 =	1,010	"	1,260	930	680
Shipments to Continental Ports	270	60 =	330	"	100	100	210
Shipments to America	1,120	180 =	1,300	"	1,250	1,540	1,030
American Imports	980	210 =	1,190	"	1,430	1,930	1,110
American Deliveries	1,040	220 =	1,260	"	1,370	1,620	980
Liverpool Imports	580	105 =	685	"	1,043	866	779
Liverpool Deliveries	545	200 =	745	"	1,393	2,406	711
Continental Imports	180	... =	180	"	260	200	190
Continental Deliveries	180	20 =	200	"	280	200	160

VISIBLE SUPPLY—1ST OCTOBER, 1913.

	1913. Pará.	1913. Caucho.	1912.	1911.	1910.
Stock in England, Pará, 1st hands	730	.....	410	1,950	1,040
Pará, 2nd hands	60	.....			268
Caucho	.....	360	290	290	702
Stock in Pará, 1st hands	450	100	130	240	610
2nd hands	390	60	540	580	260
Syndicate	810	.....	1,080	2,520	.....
Stock in America	110	40	240	310	380
Stock on Continent	.....	110	50	40	80
Afloat—Europe	710	160	560	520	470
Afloat—America	330	10	440	510	360
	3,590	840			
Total Visible Supply, including Caucho.		4,430	3,740	6,960	4,170

CROP STATISTICS—30TH JUNE, 30TH SEPTEMBER, 1913.

		Pará.	Caucho.	1913.	1912.	1911.	1910.
Pará Receipts	1913	5,270	1,330	6,600	6,460	5,650	6,180
	1912	5,440	1,020				
Pará Shipments to Europe		2,400	790	3,190	3,900	3,360	3,070
Pará Shipments to America		2,630	670	3,300	3,960	3,470	2,750
England Landings, net				2,095	3,219	2,743	2,751
England Deliveries, net				2,760	3,889	5,603	2,754
America Landings, net				3,600	3,910	4,530	2,680
America Deliveries, net				3,630	3,840	4,120	2,440
Continental Imports, net				520	1,030	510	530
Continental Deliveries, net				660	1,080	580	500

POSITION—1ST OCTOBER, 1913.

Increase in Receipts during September, 1913, against September, 1912	260
Increase in Receipts—New Crop, July/September, 1913, against 1912	140
Decrease in Deliveries—New Crop, July/September, 1913, England and Continent, against 1912	1,550
Decrease in Deliveries—New Crop, July/September, 1913, America, against 1912	210
Increase in Visible Supply Pará Grades, against 1st October last year	690
Increase in Stock, England, September 30th, 1913, against September 30th, 1912	450

WM. WRIGHT & CO., Brokers.

London, 2nd October, 1913.

During the month 80 tons, including 30 tons Caucho, have been shipped from Europe to America.

Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound.

	Oct. 30, '13.
Old rubber boots and shoes—domestic	8¼@ 8½
Old rubber boots and shoes—foreign	8 @ 8¼
Pneumatic bicycle tires	5 @ 5⅛
Automobile tires	8 @ 8½
Solid rubber wagon and carriage tires	8 @ 8½
White trimmed rubber	10 @10¼
Heavy black rubber	4½@ 4⅝
Air brake hose	4½@
Garden hose	1 @ 1¼
Fire and large hose	2 @ 2⅛
Matting	⅝@ ¾
No. 1 white auto tires	9 @ 9¼
Foreign auto tires	7¾@ 8

WEEKLY MOVEMENT OF LONDON PRICES FOR FINE PARA, 1913.

[IN SHILLINGS AND PENCE PER POUND.]

January 3, 1913	4/7¼	May 31	3/8½
January 10	4/6½	June 6	3/9¼
January 17	4/6½	June 13	3/9
January 24	4/5¼	June 20	3/8¾
January 31	4/4	June 27	3/9½
February 7	4/2¾	July 4	3/9¾
February 14	4/3	July 11	3/9
February 21	4/0½	July 18	3/9½
February 28	4/0½	July 25	3/8
March 7	3/10¾	August 1	3/8½
March 14	3/11¼	August 8	3/10
March 20	3/11	August 15	3/10½
March 28	3/9½	August 22	3/10
April 4	3/6¼	August 29	3/8½
April 11	3/4½	September 5	3/9
April 18	3/4¾	September 12	3/8
April 25	3/4½	September 19	3/6
May 2	3/5½	September 26	3/7½
May 9	3/8¾	October 3	3/4½
May 16	3/10	October 10	3/5
May 23	3/9		

Liverpool.

WILLIAM WRIGHT & Co. report [October 2]:

Fine Pará.—Prices have generally been easier, especially for the forward positions. Supplies on spot continue small, and have commanded a considerable premium on forward rates. Owing to a strike in Manáos, available supplies will be limited, but with present rates for Plantation grades, a decline in the later positions is likely. Closing values: Spot, 3*s.* 6½*d.*; October, 3*s.* 4*d.*; October-November, 3*s.* 2*d.*, and November-December, 3*s.* 1*d.*

Amsterdam.

JOOSTEN & JANSSEN report [October 20]:

At the inscription sale of 16th inst., about 143 tons were offered, of which about 118 tons were sold. Demand was good, especially for second quality *Heveas*. Prices realized were about equal to those current abroad.

Rotterdam.

HAVELAAR & DE VRIES report [October 21]:

The quotations in London affected the sale of 17th inst. Competition was good and nearly all the quantity offered was sold, altho below valuations.

IMPORTS FROM PARA AT NEW YORK.

[*The Figures Indicate Weight in Pounds.*]

OCTOBER 6.—By the *Gregory*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Arnold & Zeiss	142,600	37,600	50,400	11,600	242,200
General Rubber Co.	79,600	5,700	3,400	.....=	88,700
Meyer & Brown	70,100	7,800	22,500	700=	101,100
Meyer & Brown	36,800	.....	2,100	6,900=	45,800
Henderson & Korn	95,300	8,900	6,600	7,800=	118,600
H. A. Astlett & Co.	43,600	2,900	54,800	1,700=	103,000
Total	468,000	62,900	139,800	28,700=	699,400

OCTOBER 15.—By the *Benedict*, from Pará and Manáos:

Arnold & Zeiss	102,300	12,400	43,200	8,200=	166,100
Meyer & Brown	4,200	1,600	11,300	.....=	17,100
G. Amsinck & Co.	5,700	.....	5,300	1,100=	12,100
Henderson & Korn	141,000	19,100	75,700	44,100=	279,900
H. A. Astlett & Co.	31,300	28,600	35,500	27,000=	122,400
Total	284,500	61,700	171,000	80,400=	597,600

PARA RUBBER VIA EUROPE.

		Pounds.
SEPTEMBER 26.—By the *Mauretania*=Liverpool:		
Henderson & Korn (Fine)		11,200
SEPTEMBER 26.—By the *Pretoria*=Hamburg:		
Rubber & Guayule Agency, Inc. (Fine)		13,000
SEPTEMBER 27.—By the *Baltic*=Liverpool:		
Arnold & Zeiss (Fine)		22,500
SEPTEMBER 27.—By the *Kaiserin Auguste Victoria*=Hamburg:		
Meyer & Brown (Caucho)	92,000	
Henderson & Korn (Caucho)	11,200	103,200
OCTOBER 4.—By the *Campania*=Liverpool:		
Arnold & Zeiss (Fine)	16,000	
Raw Products Co. (Fine)	11,200	27,200
OCTOBER 4.—By the *Panama*=Colon:		
F. Rosenstein & Co. (Fine)	8,300	
Ed. Maurer (Fine)	1,200	9,500
OCTOBER 8.—By the *President Lincoln*=Hamburg:		
Ed. Maurer (Fine)	4,500	
Rubber & Guayule Agency, Inc., (Fine)	6,500	
Henderson & Korn (Caucho Ball)	67,000	78,000
OCTOBER 11.—By the *Mayaro*=Ciudad Bolivar:		
General Export & Commission Co. (Fine)	2,500	
General Export & Commission Co. (Coarse)	2,500	5,000
OCTOBER 11.—By the *Celtic*=Liverpool:		
Arnold & Zeiss (Fine)		22,500

OTHER NEW YORK ARRIVALS.

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

		Pounds.
SEPTEMBER 27.—By the *Monterey*=Mexico:		
G. Amsinck & Co		800
SEPTEMBER 29.—By the *Advance*=Colon:		
G. Amsinck & Co	4,500	
American Trading Co	2,300	
Andean Trading Co	3,000	
Lanman & Kemp	1,800	
Pottberg, Ebeling & Co	2,600	
A. de Leon & Co	1,200	
H. W. Peabody & Co	600	16,000
SEPTEMBER 29.—By the *Frutera*=Colon:		
Broedermann & Litzrodt	700	
A. Rosenthal & Sons	3,000	3,700
SEPTEMBER 27.—By the *Kaiserin Auguste Victoria*=Hamburg:		
Ed. Maurer		*18,000
SEPTEMBER 29.—By the *Pastores*=Port Limon:		
Isaac Brandon & Bros		600
SEPTEMBER 30.—By the *Carl Schurz*=Colombia:		
W. R. Grace & Co	8,000	
Various	4,500	12,500
SEPTEMBER 30.—By the *Seguranca*=Mexico:		
G. Amsinck & Co	3,500	
Harburger & Stack	1,500	
W. Loazia & Co	800	5,800
SEPTEMBER 30.—By the *Verdi*=Bahia:		
J. H. Rossbach Bros. & Co		35,000
OCTOBER 1.—By the *President Grant*=Hamburg:		
Ed. Maurer		*18,000
OCTOBER 2.—By the *Camaguey*=Mexico:		
American Trading Co	1,000	
G. Amsinck & Co	2,500	3,500
OCTOBER 3.—By the *Mettapan*=Cartagena:		
R. del Castillo & Co		500
OCTOBER 3.—By the *Sarnia*..Frontera:		
E. Steiger & Co		5,000
OCTOBER 4.—By the *Morro Castle*=Mexico:		
Hermann Kluge	7,000	
Harburger & Stack	1,500	
Maldonado & Co	300	
E. Steiger & Co	200	
American Trading Co	300	8,600
OCTOBER 4.—By the *Panama*=Colon:		
G. Amsinck & Co	8,000	
L. Johnson & Co	3,400	
Piza, Nephews & Co	1,600	
Isaac Brandon & Bros	400	
Pablo Calvert & Co	300	
Various	4,600	18,300
OCTOBER 6.—By the *New York*=Southampton:		
Arnold & Zeiss		67,000
OCTOBER 7.—By the *Albingia*=Colombia:		
Kunhardt & Co		3,000
OCTOBER 7.—By the *Comus*=New Orleans:		
Various		7,000
OCTOBER 7.—By the *Pennsylvania*=Mexico:		
G. Amsinck & Co	600	
Wessels, Kulenkampff & Co	500	1,100
OCTOBER 8.—By the *Danube*=Colon:		
Wessels, Kulenkampff & Co	300	
G. Amsinck & Co	200	500
OCTOBER 8.—By the *President Lincoln*=Hamburg:		
Ed. Maurer		*13,500
OCTOBER 9.—By the *Prince August Wilhelm*=Colon:		
G. Amsinck & Co	9,500	
Isaac Brandon & Bros	800	
Suzarte & Whitney	500	10,800
OCTOBER 10.—By the *Alliança*=Colon:		
Laurence Johnson & Co	2,000	
Piza, Nephews & Co	400	
Various	600	3,000
OCTOBER 11.—By the *Esperanza*=Mexico:		
Young & Glenn	1,500	
Harburger & Stack	1,000	
Hermann Kluge	800	3,300
OCTOBER 14.—By the *Suriname*=Colombia:		
West Coast Rubber Co	1,600	
A. Rosenthal & Sons	900	2,500
OCTOBER 14.—By the *Vasari*=Bahia:		
J. H. Rossbach Bros. & Co		56,000
OCTOBER 14.—By the *Tenadores*=Port Limon:		
Isaac Brandon & Bros		1,000
OCTOBER 14.—By the *Vigilancia*=Mexico:		
G. Amsinck & Co	1,000	
H. Marquardt & Co	200	1,200
OCTOBER 14.—By the *Prins Sigismund*=Colombia:		
Kunhardt & Co	800	
R. del Castillo & Co	600	
Various	600	2,000
OCTOBER 15.—By the *Emil L. Boas*=Colombia:		
G. Amsinck & Co		4,500
OCTOBER 16.—By the *Colon*=Colon:		
Piza, Nephews & Co		1,200
OCTOBER 17.—By the *Mexico*=Mexico:		
C. T. Wilson & Co	600	
G. Amsinck & Co	500	
Order	1,000	2,100
OCTOBER 17.—By the *Graf Waldersee*=Hamburg:		
Various		*37,500

AFRICAN.

		Pounds.
SEPTEMBER 26.—By the *Pretoria*=Hamburg:		
Arnold & Zeiss		13,500
SEPTEMBER 27.—By the *Baltic*=Liverpool:		
Henderson & Korn		*5,000
SEPTEMBER 27.—By the *Kaiserin Auguste Victoria*=Hamburg:		
Ed. Maurer	6,000	
Rubber & Guayule Agency, Inc.	5,500	11,500
SEPTEMBER 29.—By the *La Touraine*=Havre:		
Arnold & Zeiss		2,500
SEPTEMBER 29.—By the *Lapland*=Antwerp:		
Rubber & Guayule Agency, Inc.	5,000	
Rubber Trading Co	7,000	
Various	7,500	19,500
OCTOBER 1.—By the *President Grant*=Hamburg:		
General Rubber Co	17,500	
Ed. Maurer	5,500	
Rubber & Guayule Agency, Inc.	4,500	27,500
OCTOBER 3.—By the *Adriatic*=Liverpool:		
Various		10,500
OCTOBER 4.—By the *Campania*=Liverpool:		
Arnold & Zeiss		17,000
OCTOBER 7.—By the *Niagara*=Havre:		
Arnold & Zeiss		45,000
OCTOBER 8.—By the *President Lincoln*=Hamburg:		
Ed. Maurer	15,200	
General Rubber Co	15,000	
Arnold & Zeiss	33,500	
Rubber & Guayule Agency Inc.	47,500	
Henderson & Korn	7,000	118,200
OCTOBER 14.—By the *Rochambeau*=Havre:		
Arnold & Zeiss		30,000
OCTOBER 15.—By the *Caronia*=Liverpool:		
Meyer & Brown		5,000
OCTOBER 17.—By the *Kroonland*=Antwerp:		
Meyer & Brown		2,500
OCTOBER 17.—By the *Graf Waldersee*=Hamburg:		
Rubber & Guayule Agency, Inc.	12,000	
Henderson & Korn	11,000	23,000
OCTOBER 18.—By the *Cedric*=Liverpool:		
General Rubber Co	11,200	
James T. Johnstone	7,000	
Henderson & Korn	2,200	20,400

EAST INDIAN.

[*Denotes plantation rubber.]

			Pounds.
SEPTEMBER 26.—By the *Pretoria*=Hamburg:			
Rubber & Guayule Agency, Inc.		*7,000	
Various		*4,000	*11,000

SEPTEMBER 27.—By the *Kaiserin Auguste Victoria*=Hamburg:

Meyer & Brown	*8,000	
Ed. Maurer	*6,000	
Rubber & Guayule Agency, Inc.	*27,200	
Various	*7,800	*49,000

SEPTEMBER 29.—By the *Mineric*=Colombo:

Meyer & Brown	*65,000	
Ed. Maurer	*52,000	
Various	*43,000	*160,000

SEPTEMBER 29.—By the *Lapland*=Antwerp:

Meyer & Brown	*290,000	
Arnold & Zeiss	*6,000	
Rubber Trading Co.	*7,000	
Various	*3,500	*306,500

SEPTEMBER 29.—By the *Philadelphia*=Southampton:

Meyer & Brown	*35,000	
W. Stiles	*6,700	
Ed. Maurer	*27,300	
Robinson & Co.	*25,000	*94,000

SEPTEMBER 29.—By the *Minneapolis*=London:

Meyer & Brown	*66,000	
Ed. Maurer	*33,500	
James T. Johnstone	60,000	
General Rubber Co.	*78,500	
L. Littlejohn & Co.	*3,500	
Adolph Hirsch & Co.	*33,500	
Rubber & Guayule Agency, Inc.	*22,500	
C. T. Wilson	*70,000	*367,500

OCTOBER 1.—By the *Olympic*=Southampton:

Meyer & Brown	*22,500	
Ed. Maurer	*16,500	
W. Stiles	*7,000	
Arnold & Zeiss	*67,000	
C. T. Wilson	*56,000	
Raw Products Co.	*5,000	
Robinson & Co.	*16,500	
Various	*11,200	*201,700

OCTOBER 1.—By the *President Grant*=Hamburg:

Various		*3,500

OCTOBER 3.—By the *Karroo*=Colombo:

Meyer & Brown	*82,000	
W. R. Grace & Co.	*26,000	
Ed. Maurer	*10,000	
Various	*78,500	*196,500

OCTOBER 6.—By the *New York*=Southampton:

Meyer & Brown	*29,000	
Arnold & Zeiss	*7,500	
Ed. Maurer	*11,200	
Rubber Trading Co.	*2,200	
W. Stiles	*3,000	
C. T. Wilson	*16,000	
A. W. Brunn	*7,000	
Henderson & Korn	*45,000	*120,900

OCTOBER 6.—By the *Vaderland*=Antwerp:

Meyer & Brown	*110,000	

OCTOBER 6.—By the *Indrasamka*=Singapore:

Ed. Maurer	*90,000	
Henderson & Korn	*130,000	
Malaysian Rubber Co.	*45,000	
Meyer & Brown	*33,500	
L. Littlejohn & Co.	*38,000	
W. R. Grace & Co.	*11,200	
James T. Johnstone	*5,500	
Various	*37,300	*390,500

OCTOBER 6.—By the *Minnehaha*=London:

Meyer & Brown	*91,000	
General Rubber Co.	*112,000	
James T. Johnstone	*17,500	
Adolph Hirsch & Co.	*13,500	
Ed. Maurer	*7,500	
Robinson & Co.	*2,000	
Various	*4,000	*247,500

OCTOBER 7.—By the *Niagara*=Havre:

Michelin Tire Co.		*25,000

OCTOBER 7.—By the *Ryndam*=Amsterdam:

Meyer & Brown	*10,000	
Rubber Trading Co.	*22,500	
Arnold & Zeiss	*13,500	
Manhattan Rubber Mfg. Co.	*3,500	
Various	*22,500	*72,000

OCTOBER 8.—By the *President Lincoln*=Hamburg:

Ed. Maurer	*15,500	
Rubber & Guayule Agency, Inc.	*4,500	
Henderson & Korn	*9,500	*29,500

OCTOBER 9.—By the *Majestic*=Southampton:

Meyer & Brown	*12,000	
W. Stiles	*8,500	
C. T. Wilson	*35,000	
Ed. Maurer	*11,200	
Arnold & Zeiss	*35,000	
Robinson & Co.	*16,000	
W. R. Grace & Co.	*22,500	
Henderson & Korn	*3,500	*143,700

OCTOBER 11.—By the *Celtic*=Liverpool:

General Rubber Co.		*100,000

OCTOBER 14.—By the *St. Paul*=Southampton:

Meyer & Brown	*18,000	
W. Stiles	*7,500	
Robinson & Co.	*7,500	
James T. Johnstone	*9,000	
Arnold & Zeiss	*33,500	*75,500

OCTOBER 14.—By the *Solfels*=Colombo:

Meyer & Brown	*70,000	
W. R. Grace & Co.	*80,000	
Ed. Maurer	*3,500	
H. W. Peabody & Co.	*2,200	
Various	*50,000	*205,700

OCTOBER 14.—By the *Rotterdam*=Amsterdam:

Meyer & Brown		*11,000

OCTOBER 14.—By the *Minnewaska*=London:

Meyer & Brown	*100,000	
General Rubber Co.	*101,000	
James T. Johnstone	*60,000	
C. T. Wilson	*170,000	
Rubber Trading Co.	*7,000	
Henderson & Korn	*4,500	
Ed. Maurer	*4,500	
Various	*22,500	*469,500

OCTOBER 16.—By the *Oceanic*=Southampton:

Meyer & Brown	*26,000	
Arnold & Zeiss	*7,000	
C. T. Wilson	*9,000	
Ed. Maurer	*8,500	
Henderson & Korn	*30,000	*80,500

OCTOBER 16.—By the *Westerdyk*=Amsterdam:

Various		*8,500

OCTOBER 17.—By the *Kroonland*=Antwerp:

Meyer & Brown	*15,000	
W. R. Grace & Co.	*11,200	
Arnold & Zeiss	*78,500	
Rubber Trading Co.	*2,200	*106,900

OCTOBER 17.—By the *Graf Waldersee*=Hamburg:

Rubber & Guayule Agency, Inc.		*4,500

BOSTON ARRIVALS.

IMPORTS IN SEPTEMBER, 1913.

	Pounds.	Value.
Gutta-jelutong (Pontianak)	555,179	$30,403
Gutta-percha	45,515	5,852
India-rubber	10,050	5,947

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—SEPTEMBER, 1913.

Imports.	Pounds.	Value.
India-rubber	10,109,090	6,080,691
Balata	189,388	100,362
Guayule	15,323	6,965
Gutta-percha	16,392	10,273
Gutta-jelutong (Pontianak)	1,269,494	63,379
Total	11,599,587	6,261,670
Exports.		
India-rubber	11,593	6,548
Balata	9,520	6,290
Guayule	.....	.....
Gutta-percha	.....	.....
Reclaimed rubber	53,906	9,457
Gutta-jelutong (Pontianak)	.....	.....
Rubber scrap, imported	1,620,870	143,513
Rubber scrap, exported	292,682	36,613

EXPORTS OF INDIA-RUBBER AND CAUCHO FROM PARA, MANAOS AND IQUITOS FOR SEPTEMBER, 1913 (IN KILOGRAMS).

	NEW YORK.					EUROPE.					GRAND
EXPORTERS—	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	TOTAL.
Zarges, Berringer & Co.	63,830	40,171	99,497	12,511	216,009	228,363	15,222	76,665	26,347	346,597	562,606
General Rubber Co. of Brazil	29,703	3,654	19,504	4,563	57,424	41,699	2,176	1,187	314	45,376	102,800
J. Marques	127,192	19,281	105,864	23,401	275,738	47,600	1,190	5,610	.....	54,400	330,138
R. O. Ahlers & Co.	17,538	.....	1,032	3,425	21,995	20,601	.....	2,356	25,294	48,251	70,246
Suarez Hermanos & Co., Ltd.	.....	.....	.....	.....	.....	24,484	.....	2,687	15,986	43,157	43,157
Pires Teixeira & Co.	3,060	3,570	14,520	19,880	41,030	54,910	.....	4,290	.....	59,200	100,230
Sundry exporters	16,490	2,550	8,580	3,080	30,700	4,590	510	9,240	1,400	15,740	46,440
	257,813	69,226	248,997	66,860	642,896	422,247	19,098	102,035	69,341	612,721	1,255,617
Manáos, direct	362,498	104,263	75,127	101,634	643,522	358,378	50,790	26,573	124,661	562,402	1,205,924
Iquitos, direct	714	.....	.....	14,591	15,305	103,642	5,516	20,133	43,398	172,689	187,994
Total, September, 1913	621,025	173,489	324,124	183,085	1,301,723	884,267	75,404	150,741	237,400	347,812	2,649,535

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RUBBER STATISTICS FOR SEPTEMBER.

DETAILS.	1913.	1912.	1911.	1910.	1909.
Stocks, Aug. 30...*bilos*	593,469	475,572	522,401	536,560	244,851
Arrivals in September:					
Congo sorts	64,835	472,624	209,265	211,578	334,265
Other sorts	6,317	21,610	24,370	17,333	58,815
Plantation sorts ...	188,229	144,736	72,778	42,131	15,389
Aggregating	852,850	1,114,542	828,814	807,602	653,320
Sales in September...	397,730	406,415	393,269	226,694	255,866
Stocks, September 30.	455,120	708,127	435,545	580,908	397,454
Arrivals since Jan. 1:					
Congo sorts	2,105,816	2,449,414	2,350,081	2,350,698	2,659,293
Other sorts	110,857	117,338	343,019	262,114	718,936
Plantation sorts....	1,506,244	982,078	493,527	416,583	192,924
Aggregating	3,722,937	3,548,830	3,186,627	3,029,395	3,571,153
Sales since Jan. 1....	3,778,857	3,515,241	3,339,394	2,989,997	3,769,434

RUBBER ARRIVALS FROM THE CONGO.

OCTOBER 8.—By the steamer *Elisabethville:*

Bunge & Co	(Cie du Congo Belge)	1,600	
do	(Comp. Commercial Congolais)	6,800	
do	(Belgika)	1,400	
do	(Grands Lacs)	1,000	
do	(Forminière)	375	
Société Coloniale Anversoise	(Lomami)	1,310	
do	(Comminière)	312	
do	(Kasai)	109,075	
Crédit Colonial & Commercial (Anc. L. & W. Van de Velde—S. A.)	(Comfina)	15,300	
do	(Crevelde)	4,900	
Charles Dethier	(American Congo Co.)	7,000	149,072

Plantation Rubber From the Far East.

EXPORTS OF CEYLON-GROWN RUBBER.

(From January 1 to August 18, 1913. Compiled by the Ceylon Chamber of Commerce.)

	1912.	1913.
To Great Britain ...*pounds*	4,797,015	9,137,151
To United States ...	2,677,659	4,599,106
To Belgium ...	759,068	2,605,466
To Australia ...	138,874	371,789
To Germany ...	125,942	176,626
To Austria ...	45,693	29,335
To Japan ...	21,139	175,349
To Canada ...	16,065	.....
To Italy ...	5,909	38,828
To Russia ...	2,288	.....
To Holland ...	2,282	992
To France ...	2,017	4,482
To India ...	100	881
To Norway and Sweden ...	39	.....
To Straits Settlements ...	.....	48,343
Total ...	8,594,090	17,188,348

(Same period, 1911, 3,925,935; same, 1910, 2,001,719.)

The export figures of rubber for 1913 given in the above table include the imports re-exported. (These amount to 1,520,352 lbs. to 1,162,580 lbs. from the Straits, and 357,772 lbs. from India.—Ed. C. O.) To arrive at the approximate quantity of Ceylon rubber exported for 1913 to date, deduct the quantity of imports from the total exports. In previous years the exports of Ceylon rubber only were given.

TOTAL EXPORTS FROM MALAYA.

(From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.)

To—	Singapore. Sept. 10.	Penang. July 31.	Port Swetenham. Sept. 15.	Total.
Great Britain ...*pounds*	12,902,863	7,849,600	16,833,426	37,585,889
Continent ...	156,412	56,400	2,148,732	2,361,544
Japan ...	641,039	.....	.....	641,039
Ceylon ...	17,981	144,800	964,330	1,127,111
United States ...	4,031,152	171,733	.....	4,202,885
Australia ...	56,825	.....	.....	56,825
Total 1913 ...	17,806,272	8,222,533	19,946,488	45,975,293
Total, 1912 ...	9,296,381	4,798,834	14,057,852	28,153,067
Total, 1911 ...	4,231,682	2,577,465	7,818,674	14,627,831
Total, 1910 ...	2,499,332	1,270,571	6,886,394	10,656,297